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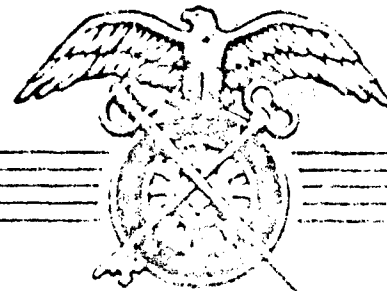
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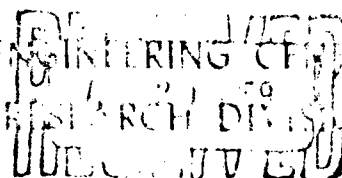
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QUARTERMASTER RESEARCH & ENGINEERING COMMAND, US ARMY
OFFICE OF THE COMMANDING GENERAL
NATICK, MASSACHUSETTS

Major General Andrew T. McNamara
The Quartermaster General
Washington 25, D. C.

Dear General McNamara:

This report, "Body Build in a Sample of the United States Army," presents data from two exhaustive investigations into the body build and size of Army personnel. These data have been and will be used as the primary source of information on the body build of the average soldier -- a subject of vital interest in the development of materiel for the Armed Forces.

Sincerely yours,

1 Incl
EP-102

C. G. Calloway
C. G. CALLOWAY
Major General, USA
Commanding

HEADQUARTERS QUARTERMASTER RESEARCH & ENGINEERING COMMAND, US ARMY
Quartermaster Research & Engineering Center
Natick, Massachusetts

ENVIRONMENTAL PROTECTION RESEARCH DIVISION

Technical Report
EP-102

BODY BUILD IN A SAMPLE OF THE UNITED STATES ARMY

Part I: Body Build in Relation to Military Function

Part II: Measurements of Body Build

Earnest A. Hooton, Ph.D.,

Department of Anthropology, Harvard University

Cambridge, Massachusetts

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February 1950

Foreword

The two reports which comprise this volume represent a unique experiment in the analysis of body build and the final scientific accomplishment of the author, Earnest A. Hooton, Professor of Anthropology at Harvard University. His untimely death in 1954 left this work in the form of two contractor's reports, each reproduced in only a handful of copies and those scattered into some very obscure governmental and academic corners. On the other hand, there have been an amazing number of references to these reports and citations from them in anthropological literature by authors who could not have had even continuous access to a copy. This Command continues to receive requests for these reports - requests that could not be filled from the single file copy of each on hand. In the year or two preceding his death, Professor Hooton indicated his awareness that the limited number of copies restricted the full utilization of this work and spoke of reorganizing the material for publication as a book - a process of popularizing scientific work at which he was extremely successful.

We have not attempted to rewrite Dr. Hooton's reports - the only factual changes have been to correct typographical errors (principally statistical) which could be identified by cross-checking between the tables and the text. In any event, the real worth of these reports is in the statistical tabulations of data on a sample which may never be equalled for size and coverage. It is with the feeling that such a fund of scientific information cannot be allowed to lapse into obscurity that this reprinting of Dr. Hooton's reports was undertaken.

AUSTIN HENSCHER, Ph.D.
Chief
Environmental Protection Research
Division

Approved:

CARL L. WHITNEY, Lt. Colonel, QMC
Commanding Officer
QM R and E Center Laboratories

J. FRED OESTERLING, Ph.D.
Acting Scientific Director
QM Research & Engineering Command

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ABSTRACT

Part I covers: (1) the general distribution of body types classified into 15 groups, as determined from the assessments of individuals by morphological studies of photographs and the use of the stature divided by the cube root of weight index; (2) the military utility of each of the several groups, whether for combat or service, as indicated by the extent to which various body types tended to be concentrated in distinct Army units and specialties; (3) the correlations of the body build groups with all sociological and other data compiled in the survey, such as age, months of service, birthplace, etc.

Part II deals with the more important measurements gathered on individual soldiers during the course of the survey, as such measurements apply to various body types, previously determined from the photographs.

BODY BUILD IN A SAMPLE OF THE UNITED STATES ARMY

PART I: BODY BUILD IN RELATION TO MILITARY FUNCTION

SUMMARY (White Series)

Nature of Material

The sample studied represents males accepted for military service; not the total U. S. male population of military age. Since the series was measured in the spring of 1946 and includes 85.53 per cent of men who have served 24 months or less, it is clear that it hardly represents, as a whole, seasoned combat veterans. Many of the men must have been inducted in the later wartime drafts.

Classification of Body Types

Body type classification is based upon the study of front, back, and side views of the nude individual, together with data on the relation of height to weight. Three structural body components are considered in the classification: fat development, muscle development, degrees of attenuation or elongation as expressed by the index of height/cube root of weight. Each component is graded on a scale from 1 to 7, by morphological examination in the case of fat and muscle, by dividing the total range of the height/cube root of weight index into seven equal steps in the case of the third component which grades attenuation. The total body type of the individual is thus expressed by a three-digit combination, each digit ranging from 1 to 7. Thus, 1-1-7 indicates a body type of minimum fat development, minimum muscle development, maximum attenuation, or height relative to weight. 4-4-4 indicates an individual at approximately the middle of the range of fat, muscle, and attenuation. These types, numerically designated, are lumped into 18 groups, each containing closely similar types, for purposes of correlation with military specialty and with other sociological phenomena.

The groups are called by the following designations according to the subdivisions of the three structural components:

- | | |
|--------------------------------------------|----------------------------------------------------|
| 1. Thin, non-muscular, elongate | 10. Balanced, short to medium |
| 2. Thin, sub-med. musculature elong. | 11. Balanced, tall |
| 3. Thin, medium musculature | 12. Medium fat, muscular |
| 4. Sub-medium, non-musc. med. and elongate | 13. Fat, non-muscular and sub-medium musculature |
| 5. Sub-medium, sub-medium musculature | 14. Fat, medium musculature |
| 6. Sub-medium, medium musculature | 15. Fat, muscular |
| 7. Sub-medium, muscular | 16. Very fat, non-muscular, sub-medium musculature |
| 8. Medium plump, non-muscular | 17. Very fat, medium musculature |
| 9. Medium plump, sub-medium musculature | 18. Very fat, very muscular |

General Distribution of Body Types on Basis of Fatty and Muscular Development

The series of White soldiers consists of 5.90 per cent thin, 29.39 per cent sub-medium (in fleshiness), 43.63 per cent medium plump, 16.14 per cent fat, and 4.92 per cent very fat. The series is therefore skewed toward leanness. It consists of 12.61 per cent of men who are relatively non-muscular or very low in muscularity (grades 1 and 2 of muscularity); 41.83 per cent of men of fair muscularity (grade 3); 35.32 per cent of men of good muscularity (grade 4) and 10.21 per cent of men of very superior or pronounced muscularity (5's, 6's, 7's).

The Principal Body Types

Three body type groups constitute no less than 48.92 per cent of the White series. The largest is Medium plump, sub-medium musculature (17.70%). This type shows a slightly greater apparent development of fat than of muscle, but is, on the whole, well-built and strong. Its muscularity is sub-medium only in this strictly graded series, not in the total male population. The second type is Balanced, short to medium, and includes 16.52 per cent of the series. In this type the fat component and the muscle component are both graded at 4 and the attenuation component usually from 3 to 5. This group represents men who are well-made and of distinctly superior muscular development from any universal point of view, although they are rated at the middle of the muscle distribution in this selected sample. The third group with 14.70 per cent of the total is Sub-medium (fat), sub-medium musculature. These are men with less than average development of fatty tissues and with muscle bulk that is also less than average but well proportioned to their fatty development. They tend to be slightly above average attenuation. They are thus rather light, somewhat slender, and often tallish individuals of what would ordinarily be considered good general development. Beyond these three great groups are 15 other groups, ranging from Fat, medium musculature, with 7.79 per cent, down to Very fat, very muscular, with only .49 per cent.

Age

15.35 per cent of the White series belongs to the age group 17, 18, 19 years; 29.36 per cent, 20 years; 23.54 per cent, 21-25 years; 22.41 per cent, 26-30 years; 9.36 per cent, 31-62 years. In the men 20 years or younger, muscularity tends to be deficient; thin weak and plump weak types are in excess and fat and very fat types somewhat deficient. Men 21-25 years approximate the distribution of the body types of the whole series, being stronger in muscularity and also in fat. The age group 26-30 years is strongly biased toward muscularity, with increase also of fat. The final age

group is very poor in the thin weak type, shows excesses of muscular men, but notably of the fat and very fat. Thus the weaker and thinner types are commoner in the young; muscularity increases notably from 21-30 years, and fat even more markedly. The two most numerous body types; Medium plump, sub-medium musculature, and Balanced, short to medium, retain virtually identical rankings throughout the age groups and suffer little age attrition. They are good types. On the whole, the physically poor types decrease with age, except the overweight obese types.

Months of Service

The Months of Service groupings are: 1-12 months, 6.34 per cent; 13-24 months, 79.19 per cent; 25-36 months, 7.31 per cent; 37-60 months, 6.06 per cent; 61-174 months, 1.10 per cent.

Thin, sub-medium fat, and medium fat (plump) body types are associated with long terms of service when muscularity is sub-medium or better. When muscularity is low there is no consistent trend. That is, in these grades of fattiness, the muscularity increases with length of service (but of course different individuals compose the various age groups and we cannot be sure that the change is one of development and aging rather than due to selection). Fat (grade 5) and Very fat (grade 6 and 7) are strongly associated with the longer periods of service and this association is more marked when muscularity also increases.

Thus poor muscular development tends to go with shorter service; slender body build also goes to some extent with shorter service; strong muscular development and increased fatty development with protracted periods of service.

A few minor and weak body types virtually disappear in the longer terms of service; muscular and fatty types increase; thin weak and plump weak types diminish. The commonest body builds which are more or less balanced in fat and muscle maintain their priority throughout.

Birthplace

Body build distributions vary remarkably according to place of birth. The highest percentages of the muscularly superior and well developed types come from the New England census district, with the Foreign Born ranking second, and the Mountain and Pacific districts rating very high. The largest assortment of thin, weak and plump, weak types comes from the South Atlantic and East South Central districts, with West South Central a little better, and East North Central prolific of the less muscular varieties. Our data show exactly the proportions of every type, weak, medium, and strong, that can be found in any census district.

National Extraction

Variations in body build are even more closely related to national extraction. Old Americans (both parents born in the United States), British, and Irish tend to run to thin and sub-medium fat body builds, especially those of medium or lesser muscularity. They tend to be low in fat and very fat types. The Scandinavian and Germanic extraction groups stand together, with slightly better muscular development, more fat, more Balanced, short to medium type, less of the "string-beans."

The Mediterranean-Near Eastern and Balto-Ugric extraction groups are somewhat similar to each other with still more of the muscular, stocky men; but the Mediterranean group is considerably the best in the muscularly superior types and the Balto-Ugric group tends to run slightly more to soft fattiness.

Muscular strength and fat deposits increase and skinny, attenuated, weak types decrease in the following order: (1) Old American, (2) Irish, (3) British, (4) Scandinavian, (5) Germanic, (6) Balto-Ugric, (7) Mediterranean-Near Eastern-Southern Slavic.

It is therefore apparent that differences in body build in the various census districts of the United States depend largely upon the national extractions of the military populations inhabiting such districts.

Rank

The White series consists of 36.26 per cent of privates, 59.38 per cent of non-commissioned officers, and 4.36 per cent of officers. Relatively meager, thin, and muscularly undeveloped types are commonest in privates, next in non-coms, rarest in officers. Most of the sub-medium fat types of medium or less musculature also grade down from privates through non-coms to officers. The Balanced, short to medium type, and nearly all types of superior muscularity tend to increase from privates through non-coms to officers. This is also true of all fat and very fat types.

Privates are then thinner, less muscular, and of course lighter as a group than non-coms, who in turn tend to be somewhat less muscular and less fat than officers. But thin muscular types increase with rank. These differences are probably caused in part by the increase in age which goes with elevation in rank.

Military Unit

The military units of the White series are AAF, 13.52 per cent; AGF, 51.97 per cent; ASF, 34.51 per cent.

AAF

Air Force personnel is divided into Flight, 2.17 per cent of total White series, Ground and Other, 11.35 per cent of the total White series. Flight personnel is notable for muscular body build types, whether thin, sub-medium, medium, or fat, but thinness is most emphasized. The "Ground and Other" group is not nearly as muscular as the Flight group. It contains rather large proportions of men of all degrees of fatty development, but commonly with the lesser muscular developments.

Total AAF compared with total series shows an overloading with thin men of whatever muscularity, but also very fat men. The non-flying personnel majority over-rides the muscularity of the flyers and produces a total sample with the extremes of body fullness (obesity) exaggerated.

AGF

The AGF constitutes 51.97 per cent of the total White series and is sub-divided into Combat Infantry (33.57% of the total series) and AGF except Infantry (18.40% of the total series).

The combat Infantry is the corps elite of the Army from the standpoint of body type. It is deficient in all thin types, and in all sub-medium and medium fat types when these types have the lowest degrees of muscular development. It is also notable for deficiencies of fat and very fat types. Thus, the Infantry has excesses of the strong Balanced, short to medium type, and of other types of superior and dominating muscularity that are neither emaciated nor obese. It runs to men of light and medium fatty development with excellent muscular systems and probably of superior strength and agility.

The AGF other than Infantry as contrasted with the total series is also notable for superior muscular development, but it tends to stress much more than the Infantry the heavier, fatter types of good muscularity. This sub-unit is weak in balanced types.

The total AGF is deficient in every body type that could be called inferior in muscular development and also falls below par in every fat and very fat type except Very fat, very muscular. It is physically the most potent major unit of the Army, remarkable for its profusion of fine physiques.

ASF

The total ASF contrasts with AGF in showing deficiencies of all essentially muscular types, except Fat, muscular; in excess

of types that are physically less strong, and, especially in overloading with the fat and very fat types that fall below the highest developments of musculature.

Military Specialty

Gunnery

Gunners (20.25% of total series) are physically the most rigidly selected as to body type and the most impressive of all military specialties. They are deficient in thin types of inferior muscularity; are strong in the sub-medium fat types, especially those of the better musculature, in the excellent Balanced, short to medium type, and in the spectacular, Medium fat, muscular. They are deficient in all fat and very fat types

Intelligence, Reconnaissance, Security

A small group, 6.16% of the total series, slightly overweighted with medium fat (plump) men of lesser grades of musculature and with some of the fatter types.

Communications

This specialty, 5.64 per cent of total series, runs somewhat high in the thin men of the lower grades of musculature.

Supply

Supply is a moderately large specialty, 11.71 per cent of the series, notable for its dearth of thin and sub-medium fat men, and for its tremendous overloading with fat and very fat types of whatever muscularity.

Maintenance

This is a specialty constituting 13.09 per cent of the series and remarkable for high muscularity associated with heavy fat deposits. It is overloaded with strong, fattish men, and is much higher in second component dominants (muscle-men) than is Supply.

Medical

This small specialty is only 3.22 per cent of total series. It runs to fat and very fat types that are not outstandingly muscular and is poor in thin and sub-medium fat types, with the exception of three that are comparatively well-muscled. Thus it is inconsistent, unless it can be assumed that these lean, strong men are the stretcher-bearers.

Engineering

This specialty, 2.38 per cent, is notable for the heavier, fatter types of good muscularity.

Technical

The technical specialty, 1.90 per cent, is heterogeneous.

Transportation

The Transportation group, 13.46 per cent of total series, tends to run low in thin and sub-medium fat types, and is a little better than total series in muscularity.

Administration

Administration is one of the largest specialties, 22.25 per cent of total series, and is outstanding for muscularly weak types, although not overloaded with fat men. This is the specialty with the poorest physiques.

Conclusions on Military Specialty - Enlisted

Almost all military specialties show clear evidence of differentiation in body build types. Certain classes of body build are found in excess in the military specialties that call for strength, agility, and endurance - e.g. Gunnery and in general combat Infantry, or for heavy physical duty involving strength, but perhaps less mobility and endurance (Engineering, Transportation, Maintenance). Into the other specialties, which may call for skills that do not involve physical exertion, go the types that are poor in muscular development. Military occupation or specialty may exaggerate differences of body build that have been associated with various previous civilian occupations. The fattest men are in the supply corps; the least muscular and apparently weakest in administration. But, of course, all specialties consist of most of the body build types and selection rarely operates so as to exclude all of the presumably unfitted body types from a particular group.

Military Specialty - Officer

Gunnery, Medical, and Administration are the only officers' specialties which in this series present samples large enough for analysis. The body type trends in these specialties follow very closely those found in the enlisted men, but, since officers are older, they tend to run higher in the fatter types within the various specialties, and, apparently, they are also slightly more heavily muscled. Full muscular development as well as fatty development seems also to come after maturity has been reached.

Significance of Body Type Differentiation by Military Units and Specialties

Unless we assume that all deliberate and purposeful military assignments and all unconscious natural selective processes result in putting the majority of individuals into military tasks for which they are physically unfitted, we must conclude that the remarkable differentiations of body build here described suggest a scientific basis for a far more efficient utilization of military personnel than at present exists. We do not know at the moment how far body build differentiation in the various units and specialties is due to rigorous physical conditioning or the lack of it in Army service, to natural hereditary endowment in body type, to the modification of physique that may have been brought about by previous civilian occupation and experience. We know only that such and such body types occur disproportionately in certain military specialties. In order to find out how efficient these various types are in the military functions in which we find them, we should have to correlate our body type findings of individuals with military records in the files of the Adjutant General and with medical records in the Office of the Surgeon General. This research would answer the question: Are the body types that occur in greatest excess in a military specialty those most fitted to perform the functions of that specialty?

Education

The lowest educational category, Illiterate, Read and Write, shows no marked body type selection, but the Grade School group is strong in the better muscled types, being notably superior to the group that has received High School or Special Training. Both the Grade and High School groups are, on the whole, less replete with types of inferior muscular development than are the men of the lowest educational category who have received no formal education. However, the superiority of the two intermediate categories to the men who have received college or professional training is still more marked. These latter tend to fatter and less muscular types. They are, of course, older, and have usually been engaged in sedentary callings, whereas the men with Grade School educations presumably follow vocations requiring physical exertion. This is perhaps not the whole story. Possibly higher education and professional calling tend toward a selection of types that are constitutionally less well endowed for manual work that calls for muscular strength. There may be some negative correlation between brains and brawn.

Civilian Occupation

The occupational classification used in the Quartermaster Survey is not well adapted to the analysis of body build types

by occupations because of its mixing, in some categories, work that requires physical exertion with work that is sedentary; skilled tasks with unskilled tasks, etc. Furthermore, because of the intricacy of the classification, certain groups have had to be combined to give samples large enough for analysis.

Students (18.92 per cent of the series) are notable for thin, elongated, non-muscular types; for sub-medium fat types of lesser muscularity; for medium plump types of underdeveloped musculature; and for general absence of fat types and heavily muscled types. Professional and Semi-professional are overloaded with types of poor musculature, thin and fat. Farmers and Farm Laborers include very few fat types, but they are not distinguished for muscularity. They are strong in balanced types and in the plump types of lesser muscular development. We have had to lump together Service Workers, Protective Service Workers, and Operatives. This category is replete with muscle men, especially those of the heavier fatty endowments. The Craftsmen and Foremen category is very similar. These two classifications are those notable for strong, muscular, "well-built" men. Salesmen and Clerical workers are overloaded with muscularly weak types and a small class called "officials" is notably obese. If time permitted, a regrouping of the data, using individual occupations and combining them more in accordance with the contrast between mental and physical requirements would yield better results.

Marital Status

41.86 per cent of the White series is married. All fat and very fat body types and all the thin and sub-medium fat men of the better muscular developments tend to be excessively married. Conversely, the celibates are overloaded with the leaner, but less muscular types. Undoubtedly, age has something to do with this very marked difference, since the married men in aging acquire greater muscularity and more fat along with family responsibilities. But, apart from age, it appears that men of stronger musculature are more likely to marry and, of course, to be divorced, separated, or widowed.

Religious Affiliation:

Protestants (69.67%) are overloaded with the lean and poorly muscled types. (Catholics (26.34%) are notably muscular and stocky. Jews (2.53%) are outstanding in obesity accompanied by inferior muscular development. These dramatic correlations probably arise from national extraction rather than from religious belief. Protestants come predominantly from the slender, elongate, lightly muscled Old American and British stocks; Catholics from the shorter, more squat, and muscularly better developed Central, Southern, and Eastern European nationalities. The Jews are a

specialized group, both in ethnic derivation from stocks that run to fat, and in their occupations, which are commonly sedentary.

Relative Attenuation or Bodily Fullness as a Separate Structural Component

Because the degree of attenuation (expressed by a seven-fold division of height divided by the cube root of weight) has in this report been combined in body types of which the primary determinants have been the development of fat (first component) and of muscle (second component), it seemed desirable to make a special analysis of attenuation. This yielded nothing of importance that had not previously emerged, with the exception of the fact that the military units and specialties most stringently selected for combat - Combat Infantry and Gunnery - are relatively very high in the middle ranges of the attenuation index and are poor in both the elongated "string-beans" and the notably squat, "sawed-off" types. The latter occur excessively in functions calling for strength rather than speed and agility. The long thins tend to gravitate into military occupations that do not call for physical strength or endurance.

INTRODUCTION

(Part I)

Purpose of the Research

The object of this research is to ascertain the relationship between body types of men in the United States Army and: military specialty, rank, education, civilian occupation, and all other items of sociological information pertinent to an analysis of the nature of manpower available for military purposes. A future report will deal with the relationship of body type to anthropometric measurements.

Material - The Series

The series includes approximately 50,000 photographs (front, side, and back views of each nude subject) with some 65 measurements of each individual. Photographs and measurements were taken under the direction of Dr. Francis R. Randall, Climatic Research Laboratory, Q.M.C., Lawrence, Mass.

The present report deals with the body type relationships of 31,658 Whites, and 3,051 Negroes and Negroids. Roughly 6,000 records of men measured at Camp Beale have not been included, because the punch card data did not reach this laboratory before it became necessary to close the series. Another approximately 3,000 records were not included because they had originally been assigned to the classification "unusable," on account of poor photographs or other defects in the data. Most of these 3,000 have now been salvaged and will be included in the final report. There remains an unusable residue of roughly 5,000 bad photographs. Also excluded from the present report is a series of several hundred inductees who should not be mixed in with veterans. Finally, there is a small series of Mongoloids (Indians, Nisei, etc.) of which the body types have been determined, but which cannot profitably be analyzed with reference to various sociological data, because their numbers are inadequate and the material is heterogeneous.

This report, then, includes roughly 35,000 of the total series of 50,000 and will be supplemented in the final report by the inclusion of some 9,000 to 10,000 additional records. It can be confidently stated that this supplemental material will not in any significant respect change the results of the present analyses.

It should be emphasized that the material of this survey is not a representative sample of the U.S. male population of military age, but only of men who have been accepted for military service. It should be noted also that while these men are "veterans" studied at separation centers in the spring of 1946, many of them can scarcely have experienced real combat service,

since 6.34 per cent have had service of 12 months or less, and another 79.19 per cent periods of service ranging from 13 - 24 months. The most of them must then represent the material drafted in the later stages of the war.

Explanation of the Classification of Body Types

Body types in this investigation have been classified mainly from the inspection of the photograph, but with the inclusion of height-weight metric relations. Each subject, from an examination of the three photographs, is rated on a scale of 1 to 7 for development of fatty tissues; on a scale of 1 to 7 for the development of muscularity; and on a scale of 1 to 7 based upon the total range of distribution of height divided by the cube root of weight.

The first two structural components, fat and muscle, are determined by appraising each of four body areas: thorax, abdomen, upper extremity, lower extremity, for each of the two components (fat and muscle). The mean of the four regional ratings gives the total body rating of fat and muscle. Height divided by the cube root of weight gives a measure of bodily fullness, or linearity (attenuation).

Thus each body build is classified in a three digit combination (the digits ranging from 1 to 7). However, for purposes of this report the individual body types have been combined into 18 groups, all but one of which include several similar but not identical body builds.

NOTE:

A commentary upon the various subgroups of body types should be prefaced by a statement concerning the standards here used for appraisal of fat and muscle development. Our method of rating body build is a modification of Sheldon's somatotyping technique.* The estimates of muscular development and strength of bony framework, which correspond closely to what Sheldon calls "mesomorphy," are based upon careful studies of the extremes found in this series and the intermediate grades. These studies were initially made by Dr. James M. Andrews. In the case of muscular development, they have resulted in standards that are far more strict

* Sheldon, W.H., Tucker, W., & Stevens, S.S. The Varieties of Human Physique, 1940

than those used by Sheldon and others in appraising mesomorphy in men of college age. This series goes so far beyond most college series in muscular development that the grade 7 (rarely assigned by us) indicates an individual of enormously more strength of muscle and massiveness of framework than the usual college young man who has been given a 7 in "mesomorphy." Correspondingly, all of our higher grades of muscular rating require more visual evidence of muscularity than do those of the Sheldonian system. In other words, muscular development on the basis of this series is marked more strictly and more conservatively. The difference between our rating and that of Sheldon is probably nearly one grade. Thus our 4's in muscular development might well be 5's in a series of young college men rated by the Sheldonian system, since these young men have not as yet attained, in many instances, their full quota of muscular development.

In the appraisal of fatty development, on the other hand, it is certain that our grading is more liberal than that of Sheldon in the lower ranges of fatty development. This is largely because the Sheldonian system recognizes such types as 1-7's for the first two structural components—that is, the minimum development of fat with the maximum of muscle. We do not find in our series that high muscularity is usually associated with minimum development of fat (rating 1). We find very few individuals with 1's and 2's in fatty development in this series. When we do find 1's and 2's, they are usually associated with low muscularity. Thus our ratings of fatty development in the lower grades are more liberal than those of Sheldon and his pupils, but this is probably not true of 5's, 6's, and 7's in fatty development. At this end of the scale, our ratings are probably as strict, if not stricter, than those of Sheldon.

The ratings in elongation or attenuation arrived at by dividing into seven equal steps a long series of height/cube root of weight indices are used for the third structural component in order to secure an objective measure to go with the subjective ratings of the first two components. According to our conception, the Sheldonian ectomorphy is mainly absence or relative absence of fatty tissue, absence or relative absence of muscular tissue, fragile skeletal framework, and then a factor expressing elongation to go with leanness and poor muscularity. Since our first two components grade fatty and muscular development, the third component in this respect is merely the converse, or the negative aspect of fat and muscle and need not be re-appraised subjectively. On the other hand, the elongation or attenuation

factor is real and seems best expressed objectively by the height divided by the cube root of weight.

This method of measuring the third component results in some body types (somatotypes) not recognized by Sheldon, since his system demands that the sum of the three digits expressing the three structural components shall not exceed 12. We recognize no such constrictions. An insignificantly few bizarre and improbable somatotypes found by our system undoubtedly result from mistakes in the punching of the cards or from errors in the records pertaining to height, weight, and the height/ $\sqrt[3]{\text{weight}}$ index. Most of these erroneous records and improbable body types will disappear during the next phase of the work when we compare the photographs of each subject with his individual measurements. At present, we are merely correlating body types with military activities, etc.

It is most important for the reader to remember that our scale of muscular development applies to a series of men who have been screened out of the male population of military age as physically acceptable for the army. Therefore, standards of physical development are stricter than would be those based upon a random sample of the general population.

Distribution of Types

The total distribution of types in the White series by individual body types and by groups is given in Table I. Here follows a brief comment upon the various body type subgroups.

I. Thin, non-muscular, elongate

The bulk of this group, which comprises 2.94 per cent of the total, consists of two body types, 225 and 226. Both of these are builds that would be described as tall and thin - the 6's relatively more elongated than the 5's. A rating of 2 in fatty tissue indicates thinness but not emaciation; 2 in muscularity indicates very light muscle masses, but by no means absence of muscularity. 225's and 226's are usually not too badly developed thin men. The "others," constituting less than one-fourth of the group and only .70 per cent of the total series, are really very inferior, "weedy," weak body types of different kinds - all "thin."

II. Thin, sub-medium, muscular, elongate

This group, 2.27 per cent of the total, includes the body types 234, 235, 236. More than half are 235's. These men are again thin but not emaciated; their musculature is light on our total rating scale, but they are more muscular than fat, and they are usually on the tall, slender order. Definitely they are better muscled than Group I, probably heavier and stronger. These are light, fairly strong, thin men.

III. Thin, medium musculature

This very small group (.69 per cent of the series) consists of 220 men who are thin (2 in the first component) but 4 (up to the middle grade) in muscularity. They are usually on the tall side. Because of their thinness and their average muscle mass, their muscles stand out in rugged relief and seem very heavy for their body builds. They are an very strong men, often somewhat over-muscled for their skeletal framework, and perhaps on the fragile side.

IV. Sub-medium, non-muscular, medium and elongate

This group totals 5.45 per cent of the series and consists predominantly of 325's, with 324's and 326's making up most of the remainder. As a class, they look slender and somewhat elongated, but they are soft, with a clear dominance of fat over muscle and usually almost no muscular relief. This group is physically inferior to any of the three preceding. The men in it look weak and it is to be doubted that they can be conditioned into fitness for strenuous physical exertion.

V. Sub-medium, sub-medium musculature

The third largest body build group, comprising 14.70 per cent of the White total. Most of these men are 4 or 5 in the third component, and the first two components are balanced at 3. That is, they have somewhat less than "average" fat (for this series), somewhat less than "average" muscle, but their fat and muscle are nicely proportioned to each other, and they add up to slightly less than average size and weight, but are of good build and probably good physical potentiality. On the whole, they tend to a little more than average elongation relative to weight. This is, then, a most important subgroup for all but the heaviest physical duty.

VI. Sub-medium, medium musculature

A group comprising 6.86 per cent of the total of men slightly below average fattiness but well up to average muscularity. It is much like III, but usually heavier and less elongate. A very superior group in physical development.

VII. Sub-medium, muscular

A small group (2.38 per cent) of men slightly below medium fatty development but very muscular. Muscularity is 5, 6, or 7. These men look "thin" because they carry a quite extraordinary musculature sharply sculptured. They are the ideal "muscle" men of the weight-lifting types, but usually on the light to medium side.

VIII. Medium plump, non-muscular

This group, comprising 3.05 per cent of the total, consists of plump but not fat men of very inferior muscularity. It looks to be one of the weakest, if not the weakest, assortment of body build types to be found in the series, and one doubts that it can be trained into any effective state of physical development.

IX. Medium plump, sub-medium musculature

This is the largest body build group in the series, comprising 17.70 per cent of the total and including, for example, the 434's who are the largest single body type group in the series, with 10.57 per cent of the total. This group is of moderate fleshiness, and a grade less than medium-rated musculature. It looks a little soft, but the men who compose it are by no means weak and would not be considered on any universal scale to be less than fairly well-muscled and of good build. It appears to be the body type most frequent in the well-nourished Americans who are not habituated to manual labor or excessively addicted to exercise. One suspects that this type, under physical conditioning, may be transformed either into the balanced 44 or the 33 combination of fat and muscle. Note that this type is certainly fit for average physical exertion and is the backbone of the Army for all but the most strenuous activities.

X. Balanced, short to medium

16.52 per cent of the entire series falls into this somewhat short-legged, stocky group. It is an excellent group of body builds, with the one body type, 444, alone comprising no less than 9.87 per cent of the total series, being the second most numerous individual body type. These Balanced, short to medium men are rugged specimens, good for very heavy physical duty. They form the dependable basis for most of the toughest military assignments.

XI. Balanced, tall

The third smallest body build group comprising .81 per cent of the total series, consists of but one body type of 257 men,

who are 4 in fat, 4 in muscularity, but long-legged - 5 in the height-weight index. These men are ordinarily very tall and heavy, but they are probably not as strong as the Balanced, short to medium.

XII. Medium fat, muscular

A group of very heavily muscled men, comprising 5.55 per cent of the series. All of them have low or medium elongation indices, because they are usually very heavy and broad and long in the trunk. This is the group that contains the most examples of "ideal" heavy-weight athletes.

XIII. Fat, non-muscular and sub-medium musculature

A group comprising 6.56 per cent of the series of men who are definitely overweight to the extent of meriting the designation "fat" and who rate 3 or infrequently 2 in muscular development. Usually the fat is most marked in the abdominal region, but it is not excessive. Musculature is ill-defined and seems inferior, but probably is not as slight as it looks, on account of fatty overlay. This is one of the poor groups, however, from the standpoint of apparent muscular development.

XIV. Fat, medium musculature

A group fourth in its total frequency in the series with 7.79 per cent. These are fattish, but strong men, usually with somewhat low elongation index. They almost certainly represent, in a good many cases, the slight fatty predominance which overtakes a well-muscled athletic man after maturity and in middle age. Our present opinion is that the body types of this group are probably capable of moderately hard physical duty, when not too old.

XV. Fat, muscular

A small group comprising only 1.79 per cent of the series in which both fat and muscularity are 5, or muscularity is 6. These men are tremendous in power and weight. They are the sort ordinarily seen in the professional wrestling ring or playing in the line or backfield on professional football teams.

XVI. Very fat, non-muscular, sub-medium musculature

This group, comprising 1.78 per cent of the series, includes the very obese, weak-looking men with 6 or 7 in the fatty component, and 3 or less in the muscular component. A good many of

these men are past the first flush of youth. This is one of the least fit groups in the Army and it is hard to see how men of this type can be retained in the service, except for wholly sedentary duties.

XVII. Very fat, medium musculature

This group (2.65 per cent) also consists of very fat men, but they are obviously heavily muscled, very strong, and well set up. Their bony framework is usually massive; they stand well; and their great legs are well-shaped and clearly very strong, in contrast with the shapeless, blubbery, fragile-looking, lower extremities often seen in the Very fat, non-muscular group.

XVIII. Very fat, very muscular

This is a small group of prodigious men, who are 6 in the first component and 5 in the second component. They comprise only .49 per cent of the series. While fat is predominant over muscle, they appear to be nearly as muscular as they are fat and are really awe-inspiring physical specimens. Such types are encountered again among the gigantic professional athletes, especially those past the early years of their manhood.

Total Distribution of Somatotypes in the Series

The 18 groups of body types recognized (all except one of which include two or more body types) can be summarized in their total distribution as to categories of fleshiness, muscularity, and relative elongation. The groups combine all of these three components.

By way of simplification it may be pointed out that the whole series consists of 35.29 per cent of thin and sub-medium fat men, 43.63 per cent of medium plumpness or fleshiness, and 21.06 per cent of fat or very fat men. On the whole, then, the veteran series is skewed toward slimmness, partly because of the low age of the majority measured.

A breakdown on the basis of muscularity shows 12.61 per cent of relatively non-muscular types, 41.84 per cent of sub-medium muscularity, 35.32 per cent of medium musculature, and 10.21 per cent of pronounced muscularity.

Of the 12.61 per cent classified as non-muscular, 1.17 per cent is composed of fat or very fat men, whose musculature may be a little better than is apparent from the photographs.

Men of sub-medium muscularity (for this series) include thin men of sub-medium musculature and sub-medium fat men (below average fleshiness), as well as medium plump men of sub-medium muscularity. It is not believed that sub-medium muscular development in this series implies in itself functional inferiority or has any military significance. The first two classes just mentioned are slender men who are at least as muscular as they are fat. The medium plump, sub-medium musculature is the largest body group in the series and consists of men whose muscular development can probably be brought up to par by training.

Distribution by Muscularity

Non-muscular - 1's, 2's	%	Total %
Thin, non-muscular, elongate	2.94	
Sub-med., non-musc., medium and elongate	5.45	
Med. plump, non-muscular	3.05	
Fat, non-muscular	.72	
Very fat, non-musc.	.45	
		12.61
Sub-medium, Muscular - 3's		
Thin, sub-med. musc., elongate	2.27	
Sub-med., sub-med. musculature	14.70	
Med. plump, sub-med. musculature	17.70	
Fat, sub-medium musculature	5.84	
Very fat, sub-medium musculature	1.33	
		41.84
Medium Muscular - 4's		
Thin, med. musculature	.69	
Sub-med., med. musculature	6.86	
Balanced, short to medium	16.52	
Balanced, tall	.81	
Fat, med. musculature	7.79	
Very fat, med. musculature	2.65	
		35.32
Pronounced Muscular - 5's, 6's, 7's		
Sub-med., muscular	2.38	
Med. fat, muscular	5.55	
Fat, muscular	1.79	
Very fat, very muscular	.49	
		10.21

The two groups of "medium" and "pronounced" muscularity combine together 45.53 per cent. Actually, these are all physically superior men from the point of view of any male distribution except this selected Army sample.

Note on Interpretation of Excesses and Deficiencies
in Tables of Body Build Distribution

Statistical tables of the raw distributions of body types in every sociological or other category were set up so as to afford interpretations of the associations of various sub-categories of builds with the total series. These complex distribution and association tables are not included in this report, but only the tables of excesses and deficiencies derived from them. However, a sample distribution and association table (Sample Table) is given here to exemplify the methods employed. The Sample Table gives the age distributions of the 17, 18, 19 category for the totals of each sub-group of body types. These are the figures at the extreme right and they add up to 100 per cent, or approximately that percentage. At the head of the right hand column is a percentage figure that indicates the proportion of 17, 18, and 19 year olds in the total White series. This total series percentage is used as a base with which to compare the percentages of 17, 18, and 19 year olds in the total of each individual body type and in the total of each body type sub-group. When, for example, it is observed that there are 21.35 per cent of all the Thin, non-muscular, elongate men who are in the 17, 18, 19 year old class, but only 15.35 per cent of these young men in the whole White series, it is evident that there is an excess of 6.02 per cent of these very young men in this body build class. On the other hand, there are only 11.70 per cent of the group Sub-medium, muscular, who are 17, 18, or 19 years old, whereas the representation of the age group in the whole series is 15.35 per cent. Thus the deficiency of this age group in that body type class is 3.65 per cent. (If the reader wishes to know the raw percentage frequency of any body type class, he can derive it by adding a tabulated body type excess to the percentage of the total category, or by subtracting from the latter a body type deficiency.) Tabulating thus the excesses and deficiencies of representation in each body build class for categories of age, length of service, or whatever, furnishes the

clearest information as to differences of body build groups from total series distribution for whatever class of sociological phenomena we are investigating. Standard errors which would statistically validate these differences have not been calculated in this report, because the sub-groups are generally so large that the sampling error may be neglected, especially when we are careful to emphasize only very large excesses and deficiencies or such as constitute consistent trends of difference in the various body build groups. Arrays of consistent differences - pointing toward skewing of the whole sociological category in one direction or another as regards body build composition - are significant and important, far and away above any purely statistical considerations. The thousands of calculations of standard errors of differences and of critical ratios derived therefrom must await future treatment, if time is available for them. They are unnecessary when caution is used in employing only really large differences and really consistent and logical trends in a very big series.

SAMPLE TABLE

DISTRIBUTION IN TOTAL SERIES - 17, 18, 19 YEARS

	No.	Type	%	15.35
I Thin, non-muscular, elongate (Others: 115-117, 123-127, 134-137, 214-217, 221-227)	78	225	21.25	
	81	226	23.75	
	40	others	17.94	
	199	Total	21.37	4.10
II Thin, sub-med.musc., elongate	11	234	17.19	
	70	235	16.39	
	32	236	14.09	
	113	Total	15.74	2.33
III Thin, med.musculature (Others: 242-246)	11	245	8.34	
	5	others	5.68	
	16	Total	7.27	.33
IV Sub-med., non-musc., medium and elongate (Others: 314-317)	77	324	20.26	
	241	325	22.86	
	47	326	24.22	
	28	others	28.87	
	393	Total	22.78	8.09

SAMPLE TABLE (cont'd)

DISTRIBUTION IN TOTAL SERIES - 17, 18, 19 YEARS (cont'd)				
	No.	Type	%	
V Sub-med., sub-med. musculature (Others: 331-337)	343 424 30 27 824	334 335 336 others Total	16.82 18.27 17.75 21.26 17.71	15.35 16.97
VI Sub-med., med. musculature	20 204 96 320	343 344 345 Total	14.08 14.87 14.54 14.73	 6.59
VII Sub-med., muscular (Others: 253-256, 355, 362,364)	20 57 11 88	353 354 others Total	12.74 13.22 6.71 11.70	 1.81
VIII Med.plump, non-muscular (Others: 413-417)	130 49 48 227	424 425 others Total	23.21 22.89 24.87 23.48	 4.67
IX Med.plump, sub-med. musculature (Others: 431,432,436,437)	235 563 153 12 963	433 434 435 others Total	15.87 16.84 21.35 20.00 17.19	 19.83
X Balanced, short to medium	16 267 478 761	442 443 444 Total	16.00 13.34 15.30 14.56	 15.67
XI Balanced, tall	56	445	21.80	1.15
XII Med. fat, muscular (Others: 452, 462)	125 61 12 10 208	453 454 463 others Total	12.26 13.35 10.00 6.29 11.85	 4.28

SAMPLE TABLE (cont'd)

DISTRIBUTION IN TOTAL SERIES - 17,18,19 YEARS (cont'd)

	No.	Type	%	15.35
XIII Fat, non-musc. and sub-med.musculature (Others: 523, 524)	32	532	10.42	
	158	533	12.62	
	28	534	9.62	
	38	others	16.67	
	256	Total	12.32	5.27
XIV Fat, med.musculature	52	542	6.91	
	156	543	10.07	
	25	544	15.63	
	233	Total	9.46	4.80
XV Fat, muscular (Others: 561,562,563)	19	552	6.21	
	24	553	11.27	
	6	others	12.50	
	49	Total	8.64	1.01
XVI Very fat, non-musc., sub-med.musculature (Others: 621-625, 631,731)	35	632	11.63	
	19	633	16.10	
	21	others	14.58	
	75	Total	13.32	1.54
XVII Very fat, med. musculature (Others: 643,741)	19	641	10.32	
	36	642	6.89	
	17	others	12.78	
	72	Total	8.58	1.48
XVIII Very fat, very muscular	1	651	1.30	
	3	652	3.80	
	4	Total	2.56	<u>.08</u>

100.00

TABLE 1

DISTRIBUTION OF SOMATOTYPES IN THE TOTAL SERIES

		No.	Type	%
I	Thin, non-muscular, elongate (Others: 115,116,117,123-127, 134-137, 214-217,221-227)	367	225	1.16
		341	226	1.08
		223	others	.70
		931	Total	2.94
II	Thin, sub-med. musc., elongate	64	234	.20
		427	235	1.35
		227	236	.72
		718	Total	2.27
III	Thin, med.musculature (Others: 242-246,244)	132	245	.42
		88	others	.28
		220	Total	.69
IV	Sub-med., non-musc.,medium and elongate (Others: 314-317)	380	324	1.20
		1054	325	3.33
		194	326	.61
		97	others	.31
		1725	Total	5.45
V	Sub-med., sub-med. musculature (Others: 331-337)	2038	334	6.44
		2321	335	7.33
		169	336	.53
		127	others	.40
		4655	Total	14.70
VI	Sub-med., med.musculature	142	343	.45
		1371	344	4.33
		660	345	2.08
		2173	Total	6.86
VII	Sub-med., muscular (Others: 253-256,355, 362-364)	157	353	.50
		431	354	1.35
		164	others	.52
		752	Total	2.38
VIII	Med.plump, non-muscular (Others: 413-417,423)	560	424	1.77
		214	425	.68
		193	others	.61
		967	Total	3.05

TABLE 1

DISTRIBUTION OF SOMATOTYPES IN THE TOTAL SERIES
(cont'd)

	No.	Type	%
IX Med. plump, sub-med. musculature (Others: 431, 432, 436, 437)	1481	433	4.68
	3347	434	10.57
	717	435	2.26
	60	others	.19
	5605	Total	17.70
X Balanced, short to medium	100	442	.32
	2004	443	6.33
	3125	444	9.87
	5229	Total	16.52
XI Balanced, tall	257	445	.81
XII Med. fat, muscular (Others: 452, 462)	1020	453	3.22
	457	454	1.44
	120	463	.38
	159	others	.50
	1756	Total	5.55
XIII Fat, non-musc. and sub-med. musculature (Others: 523, 524)	307	532	.97
	1252	533	3.95
	291	534	.92
	228	others	.72
	2078	Total	6.56
XIV Fat, med. musculature	753	542	2.38
	1552	543	4.90
	160	544	.51
	2465	Total	7.79
XV Fat, muscular (Others: 561-563)	307	552	.97
	213	553	.67
	48	others	.15
	568	Total	1.79
XVI Very fat, non-musc., sub-med. musculature (Others: 621-625, 631, 731)	301	632	.95
	118	633	.37
	144	others	.45
	563	Total	1.78

TABLE 1
DISTRIBUTION OF SOMATOTYPES IN THE TOTAL SERIES
(cont'd)

	No.	Type	%
XVII Very fat, med. musculature (Others: 643, 741)	185	641	.58
	522	642	1.65
	133	others	.42
	840	Total	2.65
XVIII Very fat, very muscular	77	651	.24
	79	652	.25
	156	Total	.49

TABLE 2
RANK AND PERCENT OF SOMATOTYPE GROUPS
ACCORDING TO FREQUENCY IN TOTAL SERIES

	Freq.	%
1. Med. plump, sub-med. musculature	5605	17.70
2. Balanced, short to medium	5229	16.52
3. Sub-med., sub-med. musculature	4655	14.70
4. Fat, med. musculature	2465	7.79
5. Sub-med., med. musculature	2173	6.86
6. Fat, non-musc., sub-med. musculature	2078	6.56
7. Med. fat, muscular	1756	5.55
8. Sub-med., non-musc., med. and elongate	1725	5.45
9. Med. plump, non-muscular	967	3.05
10. Thin, non-musc., elongate	931	2.94
11. Very fat, med. musculature	840	2.65
12. Sub-med., muscular	752	2.38
13. Thin, sub-med. musc., elongate	718	2.27
14. Fat, muscular	568	1.79
15. Very fat, non-musc., sub-med. musculature	563	1.78
16. Balanced, tall	257	.81
17. Thin, med. musculature	220	.69
18. Very fat, very muscular	156	.49

General Age Distribution

For purposes of analysis, the ages, which are recorded by single years, have been grouped into 5 general categories, distributed as follows: 17, 18, 19 years, 15.35 per cent of the series; 20 years, 29.36 per cent; 21-25 years, 23.54 per cent; 26-30 years, 22.41 per cent; 31-62 years, 9.36 per cent.

This grouping puts together the sub-adults, keeps the huge 20 year category by itself, and provides two other five-year age groups that are large enough for analysis, as well as a residual small group. It is important to note that only 55.31 per cent of this White series is presumably full mature - 21 years or over.

TABLE 3

AGE

17, 18, 19 YEARS (15.35%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very muscular	12.79	Med. plump, non-musc.	8.13
Thin, med. musc.	8.08	Sub-med., non-muscular	7.43
Very fat, med. musc.	6.77	Balanced, tall	6.45
Fat, muscular	6.71	Thin, non-muscular	6.02
Fat, med. musculature	5.89	Sub-med., sub-med. musc.	2.36
Sub-med., muscular	3.65	Med. plump, sub-med. musc.	1.84
Med. fat, muscular	3.50	Thin, sub-med. musc.	.39
Fat, non-muscular	3.03		
Very fat, non-musc.	2.03		
Balanced, short to medium	.79		
Sub-med., med. musc.	.62		

The combined categories of 17, 18, and 19 years comprise the youngest age group. Men of this group are 15.35 per cent of the total series. Table 3 gives information as to excesses or deficiencies of men of this age group in the various categories of body type. The greatest excesses of these youngest men occur in:

Medium plump, non-muscular (total 23.48%, excess 8.13%); Sub-medium (fat), non-muscular (total 22.78%, Excess 7.43%); Thin, non-muscular, elongate (total 21.37%, excess 6.02%). Other significant excesses of these youngest men are found in: Sub-medium, sub-medium musculature (total 17.71%, excess 2.36%); Medium plump, sub-medium musculature (total 17.19%, excess 1.84%); Balanced, tall (total 21.80%, excess 6.45%).

Thus the youngest men tend to show strong excesses in the non-muscular groups which are thin, or sub-medium (or medium fat). These youngsters (17, 18, 19) are markedly deficient in the Thin, medium musculature category (total 7.27%, deficiency 8.08%), and in Sub-medium (fat), muscular (total 11.70%, deficiency 3.65%). Significant deficiencies of this age group ranging from 12.79 per cent (Very fat, very muscular) down to 3.50 per cent in the Medium fat, muscular type, occur in every type of medium and greater musculature and in all fat and very fat types. However, in the fat and very fat types that are non-muscular or sub-medium in musculature the deficiency of the young age group is small.

TABLE 4

AGE

20 YEARS (29.36%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	13.84	Sub-med., non-musc.	11.05
Very fat, very muscular	13.33	Thin, non-muscular	10.60
Very fat, med. musc.	11.96	Sub-med., sub-med. musc.	7.49
Fat, med. musc.	10.85	Med. plump, non-musc.	6.32
Very fat, non-muscular	9.29	Thin, sub-med. musc.	6.16
Thin, med. musc.	8.45	Balanced, tall	4.49
Fat, non-muscular	7.85	Med. plump, sub-med. musc.	1.54
Sub-med., muscular	4.76	Sub-med., med. musc.	.32
Med. fat, muscular	2.69		
Balanced, short to medium	1.22		

The single age of 20 years comprises no less than 29.36 per cent of the total series. Men of this age are in notable excess in the following body build categories: Sub-medium, non-muscular (total 40.41%, excess 11.05%); Thin, non-muscular, elongate (total 39.96%, excess 10.60%); Sub-medium, sub-medium musculature (total 36.85%, excess 7.49%); Thin, sub-medium musculature (total 35.52%, excess 6.16%), etc.

All groups that are muscular show deficiencies of 20 year olds, as do all groups that are fat or very fat. The greatest deficiency of 20 year olds is in the Fat, muscular group (total 16.03%, deficiency 13.33%). The deficiency of 20 year olds is less marked in fat groups of small or sub-medium musculature than in those muscularly well-endowed.

TABLE 5

AGE

21 - 25 YEARS (23.54%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very muscular	4.31	Thin, medium musc.	7.82
Medium plump, non-musc.	4.20	Medium Fat. muscular	2.56
Very fat, non-muscular	4.18	Balanced, short to med.	1.85
Sub-medium, non-musc.	3.31	Thin, sub-med.musc.	1.67
Fat, muscular	2.91	Sub-medium, med. musc.	1.59
Very fat, medium musc.	1.97	Sub-medium, muscular	1.06
Balanced, tall	1.75	Medium plump, sub-med.musc.	.15
Thin, non-muscular	1.52		
Fat, medium muscular	.67		
Fat, non-muscular	.39		
Sub-medium, sub-med.musc.	.36		

Men 21-25 inclusive comprise 23.54 per cent of the total series. This age group shows fairly even distribution through the categories of body type. It is in greatest excess in the thin men of medium musculature (total 31.36%, excess 7.82%), most deficient in Very fat, very muscular (total 19.23%, deficiency 4.31%). A slight tendency toward deficiency in the fat groups of these 21-25 year men is apparent.

TABLE 6

AGE

26 - 30 YEARS (22.41%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, non-muscular	10.81	Very fat, very muscular	21.82
Sub-med., non-muscular	10.58	Fat, muscular	16.39
Med. plump, non-musc.	7.93	Very fat, med. musc.	12.04
Sub-med., sub-med. musc.	6.23	Fat, med. musculature	11.10
Thin, sub-med. musc.	4.58	Very fat, non-musc.	8.14
Balanced, tall	3.75	Sub-med., muscular	6.58
Med. plump, sub-med. musc.	2.38	Thin, med. musc.	6.23
		Fat, non-muscular	4.97
		Med. fat, muscular	3.29
		Balanced, short to med	.87
		Sub-med., med. musc.	.28

Men 26-30 years inclusive comprise 22.41 per cent of the total series. Men of this age are notably deficient in the following body type categories: Thin, non-muscular, elongate (total 11.60%, deficiency 10.81%); Sub-medium, non-muscular (total 11.83%, deficiency 10.58%); Medium plump, non-muscular (total 14.48%, deficiency 7.93%). All non-muscular, sub-medium muscular types that are thin, sub-medium, or plump show some deficiencies in this age group. All muscular and very muscular,

all fat or very fat types are in excess in this age group. The greatest excess (total 44.23%, excess 21.82%) is in the Very fat, very muscular group.

TABLE 7

AGE

31 - 62 YEARS (9.36%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced tall	5.46	Very fat, med. musc.	8.64
Sub-medium, non-musc.	4.61	Very fat, very musc.	8.59
Thin, non-musc.	4.31	Very fat, non-musc.	7.34
Thin, sub-medium musc.	3.65	Fat, muscular	7.04
Sub-medium, sub-med. musc.	3.28	Fat, non-muscular	6.28
Medium plump, non-musc.	2.33	Fat, medium musc.	6.28
Sub-medium, med. musc.	1.58	Thin, medium musc.	2.46
Medium plump, sub-med. musc.	1.17	Sub-medium, muscular	.75
Balanced, short to med.	.73	Medium fat, muscular	.33

Men aged 31-62 years inclusive comprise a residual class which makes up 9.36 per cent of the total series. The small numbers of this scattered age group and its wide spread make deductions from the data somewhat precarious. However, it is to be noted that deficiencies of this older age group occur in Thin, non-muscular, elongate; Thin, sub-medium, elongate; and the other thin, sub-medium, medium plump non-muscular or sub-medium muscled groups. The highest deficiency is in the Balanced, tall type (total 3.90%, deficiency 5.46%).

Notable excesses of this oldest age group occur in all fat types and very fat types irrespective of musculature. The excesses are usually in the nature of 6 per cent or more. The maximum is in the very fat group of medium musculature (total 18.00%, excess 8.64%) - nearly twice expectation.

TABLE 8

RANK AND PERCENT OF GROUPS ACCORDING
TO FREQUENCY IN TOTAL SERIES - AGE

	17,18,19 Years	20 Years	21-25 Years	26-30 Years	31-62 Years	Total Series
Med. plump, sub- med. musculature	19.83	18.63	17.81	15.83	15.52	17.70
Balanced, short to medium	15.67	15.83	17.81	17.17	15.25	16.52
Sub-med., sub-med. musculature	16.97	18.46	14.48	10.62	9.57	14.71
Fat, med. musc.	4.80	4.91	7.56	11.64	13.02	7.78
Sub-med., med. musc.	6.59	6.94	7.33	6.95	5.71	6.87
Fat, non-musc., sub-med. musc.	5.27	4.81	6.46	8.03	10.99	6.57
Med. fat, muscular	4.28	5.04	6.15	6.36	5.75	5.55
Sub-med., non-musc., and elongate	8.09	7.50	4.68	2.88	2.77	5.45
Med. plump, non-musc.	4.67	3.71	2.51	1.97	2.30	3.06
Thin, non-musc., elongate	4.10	4.00	2.75	1.52	1.59	2.94
Very fat, med. musc.	1.48	1.57	2.43	4.08	5.10	2.65
Sub-med., muscular	1.81	1.99	2.48	3.08	2.57	2.38
Thin, sub-med. musc., elongate	2.33	2.74	2.43	1.81	1.39	2.27
Fat, muscular	1.01	.95	1.57	3.10	3.14	1.79
Very fat, non-musc., sub-med. musc.	1.54	1.22	1.46	2.43	3.18	1.78
Balanced, tall	1.15	.94	.75	.68	.34	.81
Thin, med. musc.	.33	.50	.93	.89	.88	.70
Very fat, very musc.	.08	.27	.40	.97	.95	.49

Age - Conclusions

Muscularity is notably deficient in the men 20 years and younger. Weak thin, and plump slender types are in excess. The youngest men are somewhat deficient in all fat and very fat groups. Men 21-25 years of age constitute a little less than one-quarter, or 23 to 25 per cent of the total series, as contrasted with those younger, who comprise 44.71 per cent of the total series. These young adults (21-25) are close to a random distribution of all body types.

The next age group, 26-30, (22.41% of the series) is strongly biased toward muscularity, whether in thin, medium, or fat men. But it also shows heavy excesses of fat and very fat types.

The residual age group, 31-62 years, is only 9.36 per cent of the series. It is weak in the thin, non-muscular types found excessively in the sub-adult soldier. Like the preceding group, it shows excesses of muscular men of whatever plumpness, but most notably it is over-balanced with the fat and the very fat.

These data suggest that muscularity increases notably from 21-30 years and fatty deposits even more. All of the weak body builds are commoner in the very young except fat and very fat non-muscular types. These latter do not reach excess until ages of 26-30. Thereafter they increase markedly.

Some of these age variations in distribution of body builds are certainly due to age changes. However, the men in the older age groups are not the men in the 17, 18, 19 and 20 year categories grown older. They presumably have been selected for longer service, perhaps for more durable and stronger physiques.

Conclusions on Changing of Type Rank by Age

The leading type is Medium plump, sub-medium musculature which has a frequency of 19.83 per cent in the youngest age group (17, 18, 19) and retains its first rank in every age group except 26-30, when it drops to second rank. This type of men, who are somewhat more plump or pudgy than muscular, drops off regularly to a final percentage of 15.52 - a decrease of only 4.31 per cent. It is, therefore, the leading type of the American soldier.

Next in order is the Balanced, short to medium class which starts in the third rank with 15.67 per cent, rises to 17.81 per cent (a tie for first rank) in the 21-25 year age group, holds

first place alone in the 26-30 age group with 17.17 per cent, and drops to 15.25 per cent (second place) in the final 31-62 residual age group. Evidently the Balanced, short to medium type is throughout the backbone of the physically superior body builds of the Army, upon which the greatest drafts may be drawn for strenuous activity.

Next we have a series of sub-medium fat groups of which the most important is Sub-medium, sub-medium musculature which begins at 16.97 per cent in the youngest age group (second rank) and drops steadily to fifth rank in the oldest age group with 9.57 per cent. A similar type, Sub-medium, non-muscular, decreases from an initial 8.09 per cent to a final 2.77 per cent.

Less important numerically but showing a similar decrease in ascending age groups are Thin, non-muscular elongate (from 4.10% to 1.59%); Thin, sub-medium, elongate (from 2.33% to 1.39%). The thin or sub-medium men of sub-medium or less musculature thus are found in decreasing frequency in ascending age groups.

As stated in the beginning, the two greatest types numerically, Medium plump, sub-medium musculature and Balanced, short to medium, retain their importance throughout and undergo comparatively small age attrition.

Other groups which remain fixed or nearly so throughout the age series are: Sub-medium, medium musculature (from 6.59% to 5.71%); Medium fat, muscular (from 4.28% to 5.75%); Sub-medium, muscular (from 1.81% to 2.57%); Thin, medium musculature (from .33% to .88%). But all of these dominantly muscular types tend to show slightly higher frequencies at 21-25 and 26-30 than in the first two age groups and then drop off slightly in the oldest residual age groups.

Types that increase more or less regularly throughout the age grades are: Fat, non-muscular and sub-medium musculature (from 4.81% to 10.99%); Fat, medium musculature (from 4.80% to 13.02%); Very fat, non-muscular (from 1.54% to 3.18%); Very fat, medium musculature (from 1.48% to 5.10%); Fat, muscular (from 1.01% to 3.14%); Very fat, very muscular (from .08% to .95%).

Evidently the peaks of fat types usually fall in the uppermost age group (31-62), those of the muscular (26-30), and those of the thin and sub-medium in the first two age groups (17,18,19,20).

No type entirely disappears, but the weaker thin types greatly diminish and the fat types with good muscularity increase a little more than the fat weak types.

TABLE 9

MONTHS OF SERVICE
1 - 12 MONTHS (6.34%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	2.99	Very fat, non-musc.	3.96
Very fat, very musc.	2.49	Thin, non-muscular	3.23
Very fat, med. musc.	2.16	Balanced, tall	2.22
Sub-med., muscular	1.55	Thin, med. musc.	1.84
Med. fat, muscular	.75	Sub-med., non-musc.	1.15
Fat, med. musc.	.74	Med. plump, non-musc.	1.00
Fat, non-muscular	.52	Thin, sub-med. musc.	.64
Med. plump, sub-med. musc.	.40	Balanced, short to med.	.28
Sub-med., med. musc.	.39	Sub-med., sub-med. musc.	.26

The shortest term of service is 12 months or less. This term applies to 6.34 per cent of the total series.

All of the weak body types show excesses of men in this short term category. The greatest excess is in Very fat, non-muscular or sub-medium muscular men (total 10.30%, excess 3.96%). This excess looks small but it represents more than half again as many as would be expected.

All muscular types show deficiency in these short terms as do all fat and very fat types that are endowed with good musculature. The greatest deficiency is Fat, muscular (total 3.35%, deficiency 2.99%). Thus only about half as many of this type as would be expected are found in the short term group.

TABLE 10

MONTHS OF SERVICE
13 - 24 MONTHS (79.19%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med. musc.	10.55	Med. plump, sub-med.	3.59
Very fat, very musc.	8.04	Sub-med., sub-med.	1.17
Very fat, non-musc.	6.37	Med. plump, non-musc.	1.16
Thin, sub-med. musc.	6.15	Fat, med. musculature	1.13
Sub-med., muscular	5.79	Balanced, short to med.	.01
Thin, non-musc.	5.00		
Fat, non-musc.	1.28		
Med. fat. musc.	1.25		
Sub-med., med. musc.	1.11		
Fat, muscular	.67		
Balanced, tall	.59		
Sub-med., non-musc.	.50		
Very fat, med. musc.	.31		

79.19 per cent of the total series has served 13-24 months. In this modal category of service, excesses and deficiencies of types should be interpreted with regard to their implications of shorter or longer terms of service than the mode.

Deficiencies apparently due to greater average length of service than 13-24 months are: Thin, medium musculature, deficiency 10.55 per cent; Very fat, very muscular, deficiency 8.04 per cent; Thin, sub-medium musculature, deficiency 6.15 per cent.

The strongest excess in this length of service is Medium plump, sub-medium musculature, 3.59 per cent. This apparently "soft" modal type therefore increases and attains primacy in the group that has more than one year of military training. The fact raises a doubt as to the probable plasticity of the type under physical conditioning. If these fellows either slimmed down or increased in muscularity with physical training, the group ought to be reduced in its proportions in the second shortest term of service.

TABLE 11

MONTHS OF SERVICE
25 - 36 MONTHS (7.31%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Med.plump,sub-med.	1.28	Thin,sub-med.musc.	2.47
Fat, med.musc.	1.06	Thin,non-musc.	2.26
Balanced,short to med.	.31	Fat,muscular	1.67
Very fat,med.musc.	.15	Sub-med.,musc.	1.60
Very fat,non-musc.	.03	Sub-med.,non-musc.	1.11
		Very fat, very musc.	1.02
		Med.fat, muscular	.84
		Thin, med.musc.	.42
		Sub-med., med.musc.	.35
		Fat, non-musc.	.25
		Sub-med.,sub-med.musc.	.19
		Med.plump,non-musc.	.14
		Balanced,tall	.09

In this period of more than two years and less than three years of service are 7.31 per cent of the series. All muscular types now begin to appear in excess, as well as the fat and very fat types that are muscularly well-endowed. The big Medium plum sub-medium musculature class falls off.

TABLE 12

MONTHS OF SERVICE
37 - 60 MONTHS (6.06%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Med. plump, non-musc.	2.03	Very fat, very musc.	9.32
Med. plump, sub-med.	1.51	Thin, med. musc.	8.03
Sub-med., non-musc.	1.41	Sub-med., muscular	5.24
Sub-med., sub-med.	1.40	Thin, sub-med. musc.	3.02
Thin, non-muscular	1.33	Very fat, med. musc.	2.29
Balanced, tall	.61	Very fat, non-musc.	2.29
Balanced, short to med.	.07	Fat, muscular	1.86
		Fat, non-musc.	1.40
		Med. fat, muscular	.95
		Sub-med., med. musc.	.63
		Fat, med. musc.	.51

This group comprises 6.06 per cent of the series. By this time all of the fat and very fat types are in substantial to great excess. So are all of the muscular types. Types such as Thin, medium musculature, and sub-medium, medium musculature, representing "spare" or "lean" men with good muscular development, are quite notable. We do not at present know whether the excesses of these hard, "trained down" types is a matter of the survival of the fittest or of the transformation into such categories of some of the plumper, less muscularly developed types of shorter service. In this service group the Medium plump and Sub-medium plump men seem to diminish, especially when their average fattiness is associated with less than average musculature.

TABLE 13

MONTHS OF SERVICE
61 - 174 MONTHS (1.10%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	1.10	Thin, non-muscular	.84
Med.plump, sub-med.musc.	.40	Sub-med., med.musc.	.52
Sub-med., non-musc.	.35	Sub-med., muscular	.50
Med.plump, non-musc.	.27	Very fat, med.musc.	.33
Sub-med., sub-med.musc.	.22	Thin, med.musc.	.26
		Med.fat, muscular	.21
		Very fat, very musc.	.18
		Fat, med. musc.	.16
		Fat, non-musc.	.15
		Very fat, non-musc.	.14
		Fat, muscular	.13
		Balanced, short to med.	.12
		Thin, sub-med.musc.	.02

This variable but long term category includes only 1.10 per cent of the series and must be constituted of persons of very diverse ages. The largest and most interesting excess is that of the rare Thin, non-muscular, elongate class. It shows that this class, which would be rated as relatively weak and fragile, none the less persists and even increases in the longest service term, but possibly in the more sedentary military occupations. In general, in this longest term of service the trend toward excesses of fat and very fat men, of whatever musculature, persists, and the most important of the few deficiencies are in the Medium plump, sub-medium musculature and the Sub-medium, sub-medium classes, which are both very large groups that seem to reach their maxima in the younger ages and shorter terms of service. One might expect that in the very long service terms certain types might disappear entirely.

Such complete eliminations occur only in one class, as a total, but in several individual body build types of the rarer varieties. The Balanced, tall class does not appear at all in this longest period of service, but its total frequency in the series is only 257 individuals. Other types that disappear are the 326's in the Sub-medium, non-muscular, medium and elongate class, the 425's in Medium plump, non-muscular class, the 643's and 741's in the Very fat, medium musculature class, and the 652's in the Very fat, very muscular.

TABLE 14

RANK AND PERCENT OF GROUPS ACCORDING TO FREQUENCY IN TOTAL SERIES-MONTHS OF SERVICE

	1-12 Months	13-24 Months	25-36 Months	37-60 Months	61-174 Months	Total Series
Med.plump,sub-med.musc.	16.61	18.51	14.60	13.32	11.17	17.71
Balanced,short to med.	17.26	16.52	15.72	16.35	18.34	16.52
Sub-med.,sub-med.musc.	15.31	14.93	15.08	11.34	11.75	14.71
Fat,med.musculature	6.88	7.90	6.65	8.46	8.88	7.79
Sub-med.,med.musc.	6.43	6.75	7.17	7.58	10.03	6.85
Fat,non-musc.,sub-med. musculature	6.03	6.46	6.78	8.10	7.45	6.57
Med.fat,muscular	4.89	5.46	6.18	6.43	6.59	5.54
Sub-med.,non-musc. med.and elongate	6.43	5.41	6.26	4.18	3.72	5.44
Med.plump,non-musc.	3.54	3.10	3.11	2.04	2.29	3.06
Thin, non-musc.elongate	4.44	2.75	3.84	2.30	5.16	2.94
Very fat,med.musc.	1.75	2.64	2.59	3.66	3.44	2.65
Sub-med.,muscular	1.80	2.20	2.89	4.40	3.44	2.38
Thin,sub-med.musc. elongate	2.49	2.09	3.02	3.40	2.29	2.27
Fat,muscular	.95	1.78	2.20	2.35	2.01	1.80
Very fat,non-musc. sub-med.musc.	2.89	1.64	1.77	2.46	2.01	1.78
Balanced,tall	1.10	.81	.82	.73	0.00	.81
Thin,med.musc.	.90	.60	.73	1.62	.86	.70
Very fat, very musc.	.30	.44	.56	1.25	.57	.49

Months of Service - Conclusions

Thin types seem associated with long terms of service when muscularity is sub-medium or higher. When muscularity is low there is no consistent trend. Types of sub-medium fleshiness are slightly associated with the short terms of service until muscularity reaches medium or better. They then shift to association with longer terms.

Medium plump is strongly associated with the two shortest terms in non-muscular and sub-medium muscular types. When the first two components are balanced (44), there is a random distribution in length of service if the 44's are short or medium in elongation. Balanced, tall (445's) are positively associated with the shortest terms of service and disappear entirely in the longest service period. Medium plump, when associated with pronounced muscularity, is definitely skewed toward the longer periods of service. Fat (first component 5) is associated with the longer terms irrespective of muscularity, but the association is strongest in Fat, muscular. Very fat, is irregular when accompanied by lack of muscular development or even medium muscularity. However, Very fat, very muscular tends to be associated with very long periods of service.

On the whole, the closest associations are: poor muscular development (low second component) with shorter terms of service and increasing muscular development with the longer terms. Moderate fleshiness (plump, 4 in the second component) is apparently associated with length of service only in as far as it goes with degree of muscularity or degree of elongation. Fattiness (grade 5) is slightly associated with longer terms of service and this association becomes stronger the greater the muscularity of the fat (5) type. Very fat - marked obesity - is also slightly associated with longer terms of service and, again, the association becomes stronger with increasing muscularity. However, Very fat, non-muscular and sub-medium musculature shows its greatest excess in the shortest term and is thereafter deficient until the last two service terms are reached when it again goes into excess. Perhaps the very obese adolescents disappear and it is obesity acquired after maturity that is found in the older Army men.

Regression of Body Types on Length of Service

The Balanced, short to medium group ranks first in all service terms except the second (13-24 months), in which it drops to second place. Its maximum incidence (18.34%) is in the terminal (61-174 months) period. It holds its own consistently.

The Medium plump, sub-medium musculature type is in second place initially, rises to first in the 13-24 months service group, and drops off to third in the final period. This type decreases from an initial 16.61 per cent of the shortest service term to a final 11/17 per cent of the longest.

The Sub-medium, sub-medium musculature type starts in third place and winds up in second place (15.31% to 11.75%). It decreases somewhat also with increasing service. The above are the leading types through all lengths of service.

Other decreasing types are: Sub-medium, non-muscular (6.43% to 3.72% in successive service periods); Medium plump, non-muscular (3.54% to 2.29%); Very fat, non-muscular (2.89% to 2.01%); Balanced, tall (1.10% to 00.0%).

Increasing types are: Fat, medium musculature (6.88% to 8.88%); Sub-medium, medium musculature (6.43% to 10.03%); Fat, non-muscular (6.03% to 7.45%); Medium fat, muscular (4.89% to 6.59%); Sub-medium, muscular (1.80% to 3.44%); Very fat, medium musculature (1.75% to 3.44%); Fat, muscular (.95% to 2.01%); Very fat, very muscular (.30% to 1.57%).

Types that are more or less the same throughout the service lengths are (in addition to the Balanced, short to medium); Thin, sub-medium musculature, elongate (2.49% to 2.29%); Thin, medium musculature (.90% to .86%); and Thin, non-muscular, elongate (4.44% to 5.16%) with considerable fluctuations.

TABLE 15

BIRTHPLACE OF SUBJECT

FOREIGN BORN (1.95%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very muscular	1.31	Fat, muscular	1.04
Balanced, tall	.78	Thin, medium musc.	.78
Sub-medium, sub-med. musc.	.55	Sub-med., muscular	.45
Very fat, non-muscular	.53	Medium fat, muscular	.44
Medium plump, non-musc.	.50	Sub-medium, med. musc.	.40
Sub-medium, non-musc.	.50	Very fat, medium musc.	.31
Thin, non-muscular	.23	Fat, medium musc.	.28
Balanced, short to medium	.09	Thin, sub-med. musc.	.14
		Fat, non-muscular	.12
		Medium plump, sub-med. muscular	.07

The small foreign born series (1.95%) is notable for deficiencies of Sub-medium, non-muscular; Sub-medium, sub-medium musculature; Medium plump, non-muscular; Balanced, tall; Very fat, non-muscular; and Very fat, very muscular. Marked excesses are in thins and sub-medium types of medium or better musculature, in the medium types of marked muscularity, and in Fat, muscular.

The foreign born evidently exceed the total birthplace series in musculature.

TABLE 16

BIRTHPLACE OF SUBJECT

NEW ENGLAND (5.24%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Medium plump, non-musc.	2.14	Thin, medium musc.	3.85
Thin, non-muscular	1.91	Medium fat, musc.	3.70
Sub-medium, non-musc.	1.18	Fat, muscular	2.33
Thin, sub-medium musc.	.92	Sub-medium, muscular	1.43
Medium plump, sub-med. musc.	.85	Very fat, very musc.	1.17
Fat, non-musc., & sub-med.	.33	Sub-medium, med. musc.	.97
Sub-medium, sub-med. musc.	.23	Very fat, medium musc.	.83
Balanced, short to medium	.05	Very fat, muscular	.80
Fat, medium musc.	.01	Balanced, tall	.23

The excess of all muscular types in the sample of New England birth (5.24% of series) suggests that this sample is not composed predominantly of Old Americans, but rather of national extractions stemming from Central and Eastern Europe (cf. National Extraction). The New Englanders here present strength in virtually all of the dominantly muscular types.

TABLE 17

BIRTHPLACE OF SUBJECT

MIDDLE ATLANTIC (21.56%)

(New York, New Jersey, Pennsylvania)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, non-muscular, Elon.	4.91	Very fat, very musc.	10.49
Sub-medium, non-musc.	4.63	Fat, muscular	9.60
Balanced, tall	2.81	Very fat, med. musc.	5.94
Medium plump, non-musc.	2.64	Very fat, non-musc.	5.08
Sub-medium, sub-med. musc.	2.63	Medium fat, musc.	3.78
Thin, med. musc.	2.01	Sub-medium, musc.	3.51
Medium plump, sub-med. musc.	1.77	Fat, med. musc.	2.98
Thin, sub-med. musc. Elon.	.81	Fat, non-musc.	2.37
Sub-medium, med. musc.	.62	Balanced, short to med.	.75

The Middle Atlantic group shows similar excesses in all muscular and in fat types (especially Very fat, very muscular) to those of the New England group.

TABLE 18

BIRTHPLACE OF SUBJECT

EAST NORTH CENTRAL (20.82%)
(Ohio, Indiana, Illinois, Michigan, Wisconsin)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	5.59	Very fat, very musc.	5.46
Fat, muscular	3.57	Thin, sub-med. musc.	3.27
Thin, medium musc.	3.55	Thin, non-musc.	2.27
Very fat, non-musc.	3.06	Sub-medium, med. musc.	1.18
Fat, non-musc.	1.80	Sub-medium, sub-med. musc.	.86
Sub-medium, non-musc.	.70	Sub-medium, musc.	.78
Very fat, med. musc.	.46	Medium plump, non-musc.	.38
Medium plump, sub-med. musc.	.46	Balanced, short to med.	.36
Medium fat, muscular	.43		
Fat, medium musc.	.09		

The East North Central group shows marked deficiencies of all fat and very fat types except Very fat, very muscular, in which it has a huge excess (cf. National Extraction). Its other excesses are mostly in thin and sub-medium fat men of no particular muscular trend. It is definitely less muscular than the New England and Middle Atlantic groups.

TABLE 19

BIRTHPLACE OF SUBJECT

WEST NORTH CENTRAL (13.70%)
(Minnesota, Iowa, Missouri, N. and S. Dakota, Nebraska, Kansas)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, sub-med. musc.	3.53	Medium plump, sub-med. musc.	1.79
Thin, medium musc.	3.25	Fat, medium musc.	1.19
Very fat, non-musc.	3.04	Medium plump, non-musc.	.57
Sub-medium, musc.	2.63	Balanced, short to med.	.50
Sub-medium, med. musc.	2.15	Sub-medium, sub-med. musc.	.20
Thin, non-musc.	2.10		
Fat, muscular	.85		
Medium fat, muscular	.77		
Sub-medium, non-musc.	.71		
Very fat, very musc.	.24		
Fat, non-musc.	.17		
Balanced, tall	.03		
Very fat, med. musc.	.01		

This group is deficient in thin and sub-medium types (except the common Sub-medium, sub-medium musculature). It is also low in very fat types. It has marked excesses of Medium plump, Sub-medium, and of Fat, medium. On the whole its trends are toward means of body types rather than extremes.

TABLE 20

BIRTHPLACE OF SUBJECT

SOUTH ATLANTIC (17.05%)

(Delaware, Maryland, District of Columbia, Virginia, W. Virginia,
N. and S. Carolina, Georgia, Florida)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	6.79	Thin, non-musc.elon.	5.40
Fat, muscular	5.61	Sub-medium, non-musc.	4.81
Sub-med., Muscular	4.52	Thin, medium musc.	4.77
Medium fat, musc.	4.52	Thin, sub-med. musc.	3.01
Very fat, med.musc.	3.60	Very fat, non-musc.	2.67
Fat, med. musc.	3.01	Sub-med., sub-med.musc.	1.90
Balanced, short to med.	1.72	Medium plump, non-musc.	1.87
		Fat, non-musc.	1.34
		Balanced, tall	.92
		Medium plump, sub-med.musc.	.53
		Sub-medium, med.musc.	.21

This group has excesses of all weak types and is deficient in nearly all muscular types. It is peculiar not for its first component (fattiness or leanness) but for its generally inferior muscularity.

TABLE 21

BIRTHPLACE OF SUBJECT

EAST SOUTH CENTRAL (8.57%)

(Kentucky, Tennessee, Alabama, Mississippi)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	4.70	Thin, medium musc.	4.61
Very fat, very musc.	4.08	Sub-medium, non-musc.	3.95
Medium fat, musc.	3.05	Medium plump, non-musc.	3.43
Sub-medium, muscular	2.04	Thin, non-musc.	2.82
Fat, medium musc.	1.92	Sub-med., sub-med.musc.	1.85
Balanced, short to med.	1.45	Balanced, tall	1.59
Fat, non-musc.	1.30	Medium plump, sub-med.musc.	.82
Very fat, musc.	1.07	Thin, sub-med.musc.	.62
Very fat, non-musc.	.75		
Sub-medium, med.musc.	.56		

The East South Central group has excesses of all thin, sub-medium, and fat types that are poorly muscled, and of medium types poorly muscled. It has deficiencies of all muscular and all fat types.

Like the South Atlantic group, this census district presents muscularly weak types, but it is more clearly deficient in obesity.

TABLE 22

BIRTHPLACE OF SUBJECT

WEST SOUTH CENTRAL (2.61%)

(Arkansas, Louisiana, Oklahoma, Texas)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, medium musc.	1.70	Balanced, tall	3.64
Very fat, very musc.	1.33	Thin, sub-med.musc.	.73
Medium fat, musc.	.62	Sub-med., musc.	.59
Medium plump, non-musc.	.54	Sub-med., med.musc.	.43
Fat, muscular	.50	Very fat, med.musc.	.37
Fat, non-musc.	.40	Sub-med., non-musc.	.29
Very fat, non-musc.	.30	Balanced, short to med.	.22
Thin, non-musc.	.25	Sub-med., sub-med.musc.	.03
Medium plump, sub-med. musc.	.24		
Fat, med. musc.	.01		

This region is deficient in general in fat and very fat men, high in the thinner types of fair musculature. Its greatest excess is, however, in the weak balanced tall. This group is better muscled than the East South Central group.

TABLE 23

BIRTHPLACE OF SUBJECT

MOUNTAIN STATES (3.81%)

(Montana, Idaho, Wyoming, Colorado, Arizona, New Mexico, Utah, Nevada)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, medium musc.	1.99	Fat, muscular	1.47
Very fat, non-musc.	1.50	Balanced, tall	.88
Very fat, musc.	1.31	Med. plump, sub-med.musc.	.72
Thin, sub-med.musc.	1.30	Sub-med., muscular	.72
Sub-med., non-musc.	1.26	Balanced, short to med.	.67
Thin, non-musc.	1.02	Fat, non-muscular	.48
Sub-med., sub-med.musc.	.93	Med. fat, muscular	.45
Sub-med., med.musc.	.54	Fat, med.musc.	.45
Med. plump, non-musc.	.19	Very fat, very musc.	.04

The Mountain group is deficient in all thin types and in all sub-medium fat types except Sub-medium, muscular. It is high in medium fat types of all degrees of muscularity and also in fat types (grade 5).

TABLE 24

BIRTHPLACE OF SUBJECT

PACIFIC STATES (4.73%)

(Washington, Oregon, California)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	3.45	Balanced, tall	1.91
Thin, medium musc.	1.55	Sub-med. muscular	1.67
Thin, sub-med. musc.	1.25	Med. fat, muscular	.96
Very fat, medium musc.	1.04	Balanced, short to med.	.78
Med. plump, sub-med. musc.	.64	Fat, muscular	.73
Sub-med., sub-med. musc.	.52	Sub-med., med. musc.	.65
Fat, non-muscular	.35	Very fat, non-musc.	.60
Med. plump, non-musc.	.28	Fat, med. musc.	.10
Thin, non-muscular	.11		
Sub-med., non-musc.	.09		

The Pacific district is generally deficient in thin and sub-medium fat weak types, in medium weak types, and fat weak types (including very fat types). It is strong in muscle men of whatever first component, except Very fat, very muscular. It is high in both Balanced types.

TABLE 25
RANK AND PERCENT OF GROUPS ACCORDING TO FREQUENCY
IN TOTAL SERIES - BIRTHPLACE, SUBJECT

	For. Bn.	N.E.	Mid. Atl.	E.N. Cen.	W.N. Cen.	S. Atl.	E.S. Cen.	W.S. Cen.	Mtn.	Pac.	Tot. 1 Series
Med. plump, sub-med. musc.	18.59	14.85	16.25	17.32	20.02	18.25	19.39	16.12	21.08	15.30	17.71
Bal., short to med.	15.95	16.35	17.09	16.80	17.11	14.84	13.71	17.94	19.42	19.24	16.51
Sub-med., sub-med. musc.	10.69	14.06	12.91	15.32	14.92	16.34	17.88	14.91	11.12	13.09	14.71
Fat, med. musc.	9.05	7.79	8.87	7.76	8.46	6.41	6.04	7.76	8.71	7.95	7.79
Sub-med., med. musc.	8.39	8.15	6.67	7.26	5.79	6.95	6.41	8.00	5.89	7.82	6.87
Fat, non- musc., sub- med. musc.	7.07	6.16	7.28	6.00	6.48	7.08	5.57	5.58	7.39	6.08	6.56
Med. fat, musc.	6.91	9.47	6.52	5.43	5.24	4.08	3.58	4.24	6.22	6.68	5.55
Sub-med., non-musc.	4.11	4.22	4.28	5.27	5.17	6.99	7.96	6.06	3.65	5.34	5.45
Med. plump, non-musc.	2.30	1.81	2.68	3.11	3.18	3.39	4.28	2.42	2.90	2.87	3.06
Thin, non- musc. Elon.	2.63	1.87	2.27	3.26	2.49	3.87	3.91	2.67	2.16	2.87	2.94
Very fat, med. musc.	3.13	3.08	3.39	2.60	2.65	2.09	2.32	3.03	1.74	2.07	2.65
Sub-med., musc.	2.96	3.02	2.75	2.46	1.91	1.74	1.81	2.91	2.82	3.21	2.37
Thin-sub- med. musc.	2.47	1.87	2.18	2.63	1.68	2.67	2.43	2.91	1.49	1.67	2.27
Fat, musc.	2.80	2.60	2.59	1.49	1.68	1.20	.81	1.45	2.49	2.07	1.79
Very fat, non-musc.	1.32	2.05	2.20	1.52	1.38	2.06	1.62	1.58	1.08	2.00	1.78
Bal., tall	.49	.84	.70	.59	.81	.85	.96	1.94	1.00	1.14	.81
Thin, med. musc.	1.00	1.21	.63	.53	.53	.89	1.07	.24	.33	.47	.70
Very fat, very musc.	.16	.60	.73	.62	.48	.30	.26	.24	.50	.13	.49

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TABLE 26
DERIVATION OF BODY TYPES BY CENSUS DISTRICTS -BIRTHPLACE, SUBJECT

	For. Bn.	N.E. Atl.	Mid. Atl.	E.N. Atl.	W.N. Atl.	S. Atl.	E.S. Atl.	W.S. Atl.	Mtn.	Pac.	Total Series
Med.plump, sub-med. musc.	2.02	4.39	19.79	20.36	15.49	17.58	9.39	2.37	4.53	4.09	17.71
Bal., short to med. Sub-med., sub-med., muscular	1.86	5.19	22.31	21.18	14.20	15.33	7.12	2.83	4.48	5.51	16.51
Fat, med. musc.	1.40	5.01	18.93	21.68	13.90	18.95	10.42	2.64	2.88	4.21	14.71
Sub-med., med, musc.	2.23	5.23	24.54	20.73	14.89	14.04	6.65	2.60	4.26	4.83	7.79
Fat, non- musc., sub- med, musc.	2.35	6.21	20.94	22.00	11.55	17.26	8.01	3.04	3.27	5.38	6.87
Med. fat, musc.	2.07	4.91	23.93	19.02	13.53	18.39	7.27	2.21	4.29	4.38	6.56
Sub-med., non-musc. med. & el.	2.39	8.94	25.34	20.39	12.93	12.53	5.52	1.99	4.27	5.69	5.55
Med. plump, non-musc.	1.45	4.06	16.93	20.12	12.99	21.86	12.52	2.90	2.55	4.64	5.45
Thin, non- musc., el.	1.45	3.10	18.92	21.20	14.27	18.92	12.00	2.07	3.62	4.45	3.06
Very fat, med, musc.	1.72	3.33	16.65	23.09	11.60	22.45	11.39	2.36	2.79	4.62	2.94
Sub-med., muscular	2.26	6.07	27.50	20.36	13.69	13.45	7.50	2.98	2.50	3.69	2.65
Thin, sub- med. musc. along.	2.40	6.67	25.07	21.60	11.07	12.53	6.53	3.20	4.53	6.40	2.37
Fat, musc.	2.09	4.32	20.75	24.09	10.17	20.06	9.19	3.34	2.51	3.48	2.27
Very fat, non-musc., sub-med. musc.	2.99	7.57	31.16	17.25	12.85	11.44	3.87	2.11	5.28	5.46	1.79
Bal., tall	1.42	6.04	26.64	17.76	10.66	19.72	7.82	2.31	2.31	5.33	1.78
Thin, med. musc.	1.17	5.47	18.75	15.23	13.67	17.97	10.16	6.25	4.69	6.64	.81
Very fat, very musc.	2.73	9.09	19.55	17.27	10.45	21.82	13.18	.91	1.82	3.18	.70
	.64	6.41	32.05	26.28	13.46	10.26	4.49	1.28	3.85	1.28	.49

Birthplace - Conclusions

The data on place of birth show considerable variations in the proportions of different body types derived from the several census districts. Table 25 shows the percentage distribution of the various classes of body types for each district and the comparative ranking of the districts in production of the several classes of body types. If we take, for example, such a relatively feeble type as Medium plump, non-muscular, a perusal of the table shows that its highest relative frequency is in the East South Central district with 4.28 per cent, and its lowest relative occurrence is New England with 1.81 per cent. Since it will be shown subsequently that the various body type classes have quite differing associations with military functions and specialties, it is highly desirable for selective service authorities to know the sources of supply of the diverse types.

Table 26 gives supplementary information, since it takes the total of each class of body type and shows the percentage of it derived from each of the birthplace districts. Naturally, this table depends upon the total representation of the various census districts in the sample constituting this series. This series, of course, cannot be assumed to be a representative sample of the contributions of various census districts of the male population of military age in the United States. But it probably does give some idea of the relative size of the contributions of each district to army personnel and consequently some conception as to the area in which, for example, the greatest mass of the good, Balanced, short to medium type may be found. Thus it is seen from Table 26 that of the gross total of 5226 men in this type class, the Middle Atlantic district has furnished 22.31 per cent and the East North Central 21.12 per cent.

Generally speaking, the highest percentages of what may be called the muscular types come from New England, with the Foreign Born group ranking second and the Mountain and Pacific groups rating well. However, the New England and Foreign Born groups are relatively quite small in their gross contributions to the Army total.

The areas with the largest assortments of thin, weak, or plump, weak types are easily the South Atlantic and the East South Central. West South Central is a little better. East North Central is an area unexpectedly high in the less strong and muscular types.

The district showing the highest concentration of fat men is, on the whole, the Middle Atlantic, quite irrespective of the associated muscularity. The Mountain and Pacific districts are notable for leadership in the strong Balanced, short to medium types, and so also is West South Central. These areas also lead in production of the Balanced, tall type (which is a very rare type). However, it can be noted from Table 26 that the total contributions of these three districts in our Army series are quite small (although our Pacific sample will ultimately be enlarged by the inclusion of some 6,000 additional Camp Beale subjects).

TABLE 27
NATIONAL EXTRACTION
OLD AMERICAN (57.45%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	17.07	Balanced, tall	10.80
Fat, musc.	6.99	Sub-med., non-musc.	6.20
Medium fat, musc.	5.66	Thin, non-musc. el.	4.64
Very fat, medium musc.	4.22	Medium plump, non-musc.	4.30
Fat, medium musc.	3.97	Thin, sub-med. musc.	4.40
Sub-medium, muscular	3.47	Thin, med. musc.	2.36
Balanced, short to med.	2.30	Fat, non-muscular	2.17
Sub-med., med. musc.	.70	Medium plump, sub-med. musc.	1.90
		Sub-med., sub-med. musc.	1.20
		Very fat, non-musc.	.31

This group, 57.45 per cent of the total, has marked excesses of every muscularly inferior type, but especially of the thin, sub-medium and medium types of lesser musculature. It also has excesses of fat and very fat non-muscular and sub-medium muscular types.

Old Americans are deficient in fat and very fat muscular types and, in fact, in nearly every muscularly dominant type, as well as in Balanced, short to medium. However, this group has a great excess in the small Balanced, tall type (an overgrown type which shows correlations with sociological categories involving poor muscular development).

TABLE 28

NATIONAL EXTRACTION

GERMANIC (9.52%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	4.36	Very fat, very musc.	3.30
Thin, non-musc. Elon.	2.66	Fat, medium musc.	.84
Thin, medium musc.	2.04	Bal., short to med.	.83
Fat, muscular	1.32	Sub-med., med. musc.	.74
Sub-med., non-musc.	.64	Sub-med., musc.	.64
Thin, sub-med. musc.	.58	Med. fat, musc.	.58
Medium plump, sub-med. musc.	.47	Med. plump, non-musc.	.39
Fat, non-musc.	.30	Very fat, non-musc.	.23
Sub-med., sub-med. musc.	.29	Very fat, med. musc.	.10

The group of Germanic extraction (9.52%) is deficient in all thin types, similarly in sub-medium fat types of sub-medium or less musculature. It is also low in Fat, non-muscular, and Sub-medium, non-muscular. It is very low in Balanced, tall. However, these men of Germanic origin show excesses of very fat types (especially Very fat, very muscular), and of Balanced, short to medium, and sub-medium types of medium or pronounced muscularity.

This group tends to run to fat, muscular men, but the excesses and deficiencies are usually not great.

TABLE 29

NATIONAL EXTRACTION

BRITISH (8.38%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	2.06	Thin, med. musc.	2.37
Med. plump, non-musc.	1.64	Balanced, tall	2.33
Med. fat, muscular	1.57	Sub-med., sub-med. musc.	.89
Very fat, med. musc.	1.19	Thin, non-musc. Elon.	.77
Fat, non-muscular	.77	Fat, med. musc.	.49
Sub-med., non-musc.	.51	Thin, sub-med. musc.	.41
Very fat, very musc.	.05	Sub-med., med. musc.	.29
		Med. plump, sub-med. musc.	.12
		Bal., short to med.	.07

Fat, muscular and Sub-medium, muscular have no Excesses and Deficiencies.

British deficiencies are usually in the fatter types whether muscular or not. Excesses are especially in thin men of medium musculature and in Balanced, tall.

The British are not as weak as the Old Americans in muscular types, nor do they show the Old American excesses of the fatter non-muscular types. However, they are like the Old Americans, although superior to them in musculature.

TABLE 30

NATIONAL EXTRACTION

NEAR EAST, MEDITERRANEAN, SOUTHERN SLAVIC (7.16%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	3.99	Very fat, very musc.	12.07
Med. plump, non-musc.	3.68	Med. fat, muscular	5.76
Sub-med., non-musc.	3.07	Fat, muscular	5.41
Thin, non-musc. elong.	2.69	Sub-med., muscular	3.28
Med. plump, sub-med. musc.	1.83	Very fat, med. musc.	2.58
Fat, non-muscular	1.37	Fat, med. musc.	1.67
Very fat, sub-med. musc.	1.20	Bal., short to med.	1.12
Sub-med., sub-med. musc.	1.16	Sub-med., med. musc.	.71
Thin, medium musc.	.62	Thin, sub-med. musc.	.07

This combined group of Near Eastern, Mediterranean, and Southern Slavic includes also Mexicans and composes 7.16 per cent of the series. It is strongly deficient in Balanced, tall, Medium plump, non-muscular, Sub-medium, non-muscular, Thin, non-muscular, elongate, and Medium plump, sub-medium musculature. It tends to show deficiencies in all under-muscled types. It has a tremendous excess of the rare Very fat, very muscular type, large excesses of Medium fat, muscular; Fat, muscular; Sub-medium (fat), muscular; and notable excesses of Very fat, medium musculature; Fat, medium musculature; and Balanced, short to medium.

This national extraction group is remarkable for heavy, muscular men and particularly for great muscularity. It is the extraction group of maximum strength in body build.

TABLE 31

NATIONAL EXTRACTION

BALTO-UGRIC, CENTRAL SLAV, RUSSIANS, SOVIETS (7.00%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	5.01	Fat, muscular	4.48
Thin, sub-med. musc.	2.04	Very fat, non-musc.	3.47
Sub-med., non-musc.	1.97	Very fat, med. musc.	2.87
Thin-non-musc. elong.	1.55	Medium plump, non-musc.	1.54
Sub-med., sub-med.		Fat, medium musc.	1.50
musc.	1.35	Medium fat, muscular	1.40
Thin, med. musc.	.93	Sub-medium, muscular	.83
Sub-medium, med.		Fat, non-muscular	.70
musc.	.67	Very fat, very musc.	.69
Medium plump, sub-		Balanced, short	
med. musc.	.45	to medium	.26

This group, comprising 7 per cent of the series, is notably deficient in Balanced, tall, in all thin types, and in sub-medium types of medium or less muscularity. It shows excesses of all fat and very fat types, irrespective of muscularity and, in general, of medium and sub-medium fat types that are muscular.

It compares rather closely with the Near Eastern, Mediterranean group but is somewhat inferior to it in muscularity, although ranking high. It is also a fatter group.

TABLE 32
NATIONAL EXTRACTION
IRISH (5.41%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	1.77	Sub-med., sub-med.	.68
Fat, medium musc.	1.06	musc.	
Very fat, very musc.	.92	Sub-med., non-musc.	.63
Thin, medium musc.	.74	Medium plump, non-	
Thin, sub-med. musc.	.73	musc.	.39
Balanced, tall	.65	Fat, non-muscular	.38
Sub-medium, muscular	.60	Thin, non-musc.elon.	.36
Medium plump, sub-		Balanced, short to	
med. musc.	.31	medium	.23
Sub-med., med. musc.	.26	Very fat, non-musc.	.19
Medium fat, musc.	.13	Very fat, med. musc.	.19

The Irish group (5.41%) is deficient in fat and very fat muscular types and, in general, in the thinner but muscular types. It has small excesses of most of the thinner non-muscular and sub-medium muscular types. Fat and very types of poor muscularity are also in excess in the group of Irish extraction. It is very close in its type distributions to the Old Americans and to the British.

TABLE 33
NATIONAL EXTRACTION
SCANDINAVIAN (4.09%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Sub-medium, musc.	1.07	Balanced, tall	1.86
Medium plump, non-musc.	.93	Very fat, very musc.	1.68
Very fat, non-musc.	.84	Medium plump, sub-	
Thin, medium musc.	.82	med. musc.	1.08
Thin, sub-med. musc.	.69	Fat, med. musc.	.55
Fat, muscular	.63	Thin, non-musc. elong.	.27
Sub-medium, med. musc.	.62	Very fat, med. musc.	.17
Sub-medium, non-musc.	.60		
Fat, non-musc.	.51		
Medium fat, musc.	.45		
Sub-medium, sub-med.	.25		
musc.			
Balanced, short to med.	.02		

The Scandinavian group (4.09%) is deficient in types of sub-medium fleshiness, however, muscled, and in two of the three thin types. It is slightly low in medium fat types, Balanced, short to medium, and of average or better musculature.

The Scandinavians are the leaders in the Balanced, tall type (which is numerically small) and are second in the Very fat, very muscular types.

The trends in this group are mixed and seem not to present as clear a picture as British, Irish, and Old Americans, possibly because of the lumping of Finns with the more linear and elongate Western Scandinavians.

TABLE 34

RANK AND PERCENT OF GROUPS ACCORDING TO FREQUENCY IN TOTAL SERIES-
NATIONAL EXTRACTION

	Old Amer.	Ger- manic	Bri- tish	N.East Medit. S.Slav	Slav Russ.	Irish	Scan- dina- vian	Total Series
<u>Med. plump, sub- med. musculature</u>	18.31	16.86	17.97	13.24	16.60	16.74	22.43	17.73
<u>Bal., short to medium</u>	15.83	17.95	16.62	19.11	17.10	17.21	16.43	16.49
<u>Sub-med., sub- med. musculature</u>	15.03	14.29	16.28	12.38	11.89	16.62	13.82	14.73
<u>Fat. med. musc.</u>	7.25	8.48	8.23	9.62	9.45	6.28	8.85	7.78
<u>Sub-med., med. musculature</u>	6.80	7.43	7.12	7.59	6.22	6.58	5.85	6.89
<u>Fat, non-musc. sub-med. musc.</u>	6.63	6.38	5.96	5.33	7.24	7.05	5.77	6.58
<u>Med. fat. musc.</u>	4.95	5.84	4.46	9.94	6.59	5.38	4.90	5.50
<u>Sub-med., non- musc., med. & long.</u>	6.04	5.09	5.12	3.12	3.92	6.10	4.66	5.45
<u>Med. plump, non- muscular</u>	3.29	3.19	2.46	1.49	3.73	3.29	2.37	3.06
<u>Thin, non-musc., elongate</u>	3.20	2.14	3.23	1.85	2.31	3.17	3.16	2.76
<u>Very fat, med. musculature</u>	2.45	2.68	2.27	3.62	3.73	2.75	2.76	2.65
<u>Sub-med., musc.</u>	2.21	2.51	2.35	3.43	2.63	2.09	1.74	2.35
<u>Thin, sub-med., musc., elongate</u>	2.41	2.14	2.39	2.30	1.61	1.97	1.90	2.28
<u>Very fat, non- musc., sub-med. musc.</u>	1.80	1.83	1.35	1.49	2.67	1.85	1.42	1.79
<u>Fat. muscular</u>	1.56	1.53	1.77	3.12	2.90	1.20	1.50	1.77
<u>Balanced, tall</u>	.97	.44	1.04	.36	.23	.72	1.18	.81
<u>Thin, med. musc.</u>	.72	.54	.88	.63	.60	.60	.55	.69
<u>Very fat, very musc.</u>	.35	.68	.50	1.36	.55	.42	.71	.50

National Extraction - Conclusions

Men of Old American, British, and Irish extraction fall into very similar body build distribution categories. They tend to run high in thin and sub-medium fat body builds, especially those of medium or lesser muscularity. They are high in Balanced, tall (except the Irish) and are not outstanding for any particular development of fat and very fat types.

The Scandinavian and Germanic groups are somewhat similar, but the Germanic men are slightly better muscled and show more Balanced, short to medium, less Balanced, tall, less Medium plump, sub-medium musculature. These two groups stand between the American-British-Irish and the Mediterranean-Slavic group.

The Near East, Mediterranean, and Balto-Ugric Slavic groups are also somewhat similar, but the Near East-Mediterranean group is stronger in muscularity, lower in the thinner less muscular types. Both are high in fat and very fat muscular men.

In strongly muscled types (Sub-medium, muscular; Medium fat, muscular; Fat, muscular; Very fat, very muscular), the Near Eastern-Mediterranean group ranks consistently first (first in every type). The Balto-Ugric group is second, the Germanic third, British fourth, Scandinavians and Old Americans are tied for fifth place, and the Irish are last.

In thin, weak or sub-medium muscled types and thin, medium (Thin, non-muscular, elongate; Thin, sub-medium musculature, elongate; Thin, medium musculature; Sub-medium, non-muscular; Sub-medium, sub-medium musculature), the British rank first, Old American second, Irish third, Germanic stocks fourth, Scandinavians and Near Eastern-Mediterranean tie for fifth, and the Balto-Ugric group is last.

In plump to fat and very fat types of poor to sub-medium musculature (Medium plump, non-muscular; Medium plump, sub-medium musculature; Fat, non-muscular and sub-medium musculature; Very fat, non-muscular, sub-medium musculature) the Balto-Ugric group ranks first; Old Americans and Irish tie for second; Germans fourth; Scandinavians fifth; British sixth, and Mediterranean-Near Eastern last.

The extractions explain to a considerable extent the diversity of body types of census districts of birth. Clearly the principal reasons why the Middle Atlantic and New England districts show such profusions of the well-muscled types and why the former district is so high in heavy men have to do with the population of recent foreign origin in these industrialized areas, which includes so many Southern, Eastern, and Central Europeans. These countries provide excesses of short, stocky, muscular men - even down to the second generation born in this country. On the other hand, districts such as Southern Atlantic and East South Central are mostly Old American (which implies mainly British and Irish derivation) and, consequently, the slender, tallish types of lighter musculature are likely to come in disproportionately large numbers from such regions.

There are, of course, other factors beside that of national extraction which must serve to influence the nature of physical body builds in various parts of the United States. One of these is possibly occupation, but this will be dealt with later, and it may be more of a selective than a formative factor.

TABLE 35

RANK

PRIVATE (36.26%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	13.82	Thin, non-musc.	4.23
Very fat, med. musc.	7.33	Sub-med., non-musc.	3.79
Thin, medium musc.	3.99	Sub-med., muscular	1.90
Fat, muscular	3.69	Medium plump, non-musc.	1.87
Fat, medium musc.	3.52	Medium fat, muscular	1.78
Fat, non-muscular	3.20	Sub-med., med. musc.	1.51
Very fat, non-musc.	2.51	Medium plump, sub-med. musc.	.75
Balanced, tall	1.49	Thin, sub-med. musc.	.70
		Sub-med., sub-med. musc.	.50
		Bal., short to medium	.23

Privates are deficient in all fat and very fat types and in Thin, medium musculature. They show excesses in thin and sub-medium non-muscular types and in all sub-medium and medium types in fattiness.

TABLE 36

RANK

NON-COM. (59.38%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Sub-med., musc.	3.93	Very fat, very musc.	7.29
Thin, non-musc.	3.31	Very fat, med. musc.	3.83
Sub-med., non-musc.	2.73	Fat, medium musc.	2.04
Medium fat, musc.	1.52	Balanced, tall	1.56
Sub-med., med. musc.	.74	Fat, non-muscular	1.29
Medium plump, non-musc.	.73	Fat, muscular	.83
Thin, sub-med. musc.	.38	Very fat, non-musc.	.66
Medium plump, sub-med. musc.	.11	Thin, med. musc.	.62
		Sub-med., sub-med. musc.	.53
		Bal., short to medium	.11

Non-coms are deficient in most thin and sub-medium and medium types except Thin, medium musculature, Sub-medium, sub-medium musculature, and Balanced, tall. Their notable excesses are in fat and very fat types.

TABLE 37

RANK

OFFICERS (4.36%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Medium plump, non-musc.	1.15	Very fat, very musc.	6.54
Sub-medium, non-musc.	1.05	Very fat, med. musc.	3.50
Sub-medium, sub-med. musc.	1.03	Thin, medium musc.	3.37
Thin, non-musc.	.92	Fat, muscular	2.86
Sub-medium, med. musc.	.77	Fat, non-muscular	1.91
Medium plump, sub-med. musc.	.64	Sub-medium, muscular	1.89
Balanced, short to medium	.34	Very fat, non-musc.	1.86
Thin, sub-med. musc.	.32	Fat, medium musc.	1.74
Medium fat, muscular	.26		
Balanced, tall	.06		

Officers are deficient in Thin, non-muscular and Thin, sub-medium muscular; in Sub-medium (fleshy) types of sub-medium or less muscularity; in Medium plump, non-muscular and muscular; in Balanced, short to medium. They are in excess in thin men of medium musculature, in sub-medium fat men of marked musculature, and in all fat and very fat types.

TABLE 38

RANK AND PERCENT OF GROUPS ACCORDING TO FREQUENCY IN
TOTAL SERIES — RANK

	Private	Non- Com.	Offi- cer	Total Series
Med. plump, sub-med. musc.	18.06	17.67	15.08	17.70
Balanced, short to medium	16.61	16.53	15.23	16.50
Sub-med., sub-med. musc.	14.91	14.84	11.24	14.71
Fat, med. musc.	7.04	8.06	10.37	7.80
Sub-med., med. musc.	7.15	6.78	5.66	6.87
Fat, non-musc., sub-med. musc.	5.98	6.71	9.43	6.56
Med. fat, muscular	5.83	5.41	5.22	5.55
Sub-med., non-musc., med. & elong.	6.02	5.20	4.13	5.45
Med. plump, non-muscular	3.21	3.01	2.25	3.05
Thin, non-musc., elongate	3.29	2.78	2.32	2.94
Very fat, med. musc.	2.12	2.83	4.79	2.66
Sub-med., muscular	2.50	2.20	3.41	2.38
Thin, sub-med. musc. elong.	2.31	2.25	2.10	2.27
Fat, muscular	1.61	1.82	2.97	1.80
Very fat, non-musc. sub-med. musc.	1.66	1.80	2.54	1.78
Balanced, tall	.78	.83	.80	.81
Thin, med. musculature	.62	.70	1.23	.70
Very fat, very muscular	.31	.55	1.23	.49

Rank - Conclusions

Such relatively meager and undeveloped types as Thin, non-muscular, and Thin, sub-medium musculature, are commonest in privates, next in non-coms, rarest in officers. On the other hand, Thin, medium musculature, is at a maximum in officers and a minimum among privates, with the non-coms in between.

In Sub-medium, non-muscular; Sub-medium, sub-medium musculature; and Sub-medium, medium musculature, the ranking is (1) privates, (2) non-coms, (3) officers.

In Sub-medium, muscular, officers are first, privates second, non-coms third. Medium plump, non-muscular, and Medium plump, sub-medium musculature, both grade down from privates through non-coms to officers. This is true also of the Balanced, short to medium. In Balanced, tall, non-coms rank first, officers second, and privates third. Medium fat, muscular, grades from privates (1) to officers (3).

All fat and very fat types show the following rankings: (1) officers, (2) non-coms, (3) privates.

Note that all of the thinner less muscular types are at a maximum in privates and a minimum in officers, and also most of the sub-medium fat types with musculature medium or less. Thus the lighter, smaller men tend to be the privates. But this is true also of the plumpish men of lesser musculature.

Of course, the age factor must explain to some extent these clear gradations. Officers and non-coms are certainly above mean age of privates and therefore include more men who have taken on fat. They may also eat better and do less physical labor.

The thin, muscularly undeveloped types and the plump, weak types perhaps would be expected to occur most often in privates, because they are types common in the immature and the physically untrained. Such a class as Thin, medium musculature is likely to be found in the mature man, fined down by exercise and developed in his musculature - the spare, lean, "whipcord" type.

It is to be presumed that length of service is much of a determinant in rank and this would imply greater age with its concomitants of increased fat, increased muscularity. Certain social and ethnic factors may also be operative. Balanced, tall, for example, is a type found in Old Americans and in upper economic classes, but Balanced, short to medium, is Central, Southern, and Eastern European and most commonly found in persons of national extractions likely to be engaged in physically active occupations.

TABLE 39

MILITARY UNIT

AAF FLIGHT (2.17%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	1.46	Thin, medium musc.	6.63
Fat, medium musc.	.42	Thin, sub-med. musc.	1.35
Medium plump, sub-med. musc.	.25	Fat, muscular	.67
Thin, non-musc. Elon.	.22	Sub-medium, musc.	.66
Fat, non-muscular	.19	Balanced, tall	.59
Very fat, medium musc.	.14	Very fat, musc.	.43
Balanced, short to med.	.10	Medium fat, musc.	.35
Sub-medium, sub-med. musc.	.08	Sub-medium, non-musc.	.33
		Sub-medium, medium musc.	.12
		Medium plump, non-musc.	.11

Air force personnel has been broken down into (1) Flight, (2) Ground and Other. The flight group of 685 men is 2.17 per cent of the total series. Its most notable excesses are in Thin, sub-medium musculature, elongate, and in Thin, medium musculature. Other considerable excesses are Fat, muscular; Sub-medium, muscular; Balanced, tall. Thus this group tends in the lower ranges of the first component (fleshiness) to be muscular, but there are also excesses of medium fat, fat, and very fat men - all muscular. The most notable deficiency is in the Very fat, non-muscular category. As a whole, then, flight personnel is muscular, whether thin, sub-medium, medium fat, or very fat.

TABLE 40

MILITARY UNIT

AAF GROUND AND OTHER (11.35%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Medium fat, musc.	1.85	Very fat, non-musc.	5.02
Balanced, short to med.	1.11	Thin, sub-med. musc.	4.57
Medium plump, sub-med. musc.	1.05	Thin, non-musc.	3.26
Fat, non-muscular	.96	Very fat, medium musc.	3.33
Sub-med., sub-med. musc.	.94	Sub-medium, non-musc.	2.39
Sub-med., muscular	.58	Thin, medium musc.	2.08
Fat, medium musc.	.53	Sub-medium, sub-med. musc.	1.49
Fat, muscular	.18	Balanced, tall	.86
		Very fat, very musc.	.34
		Medium plump, non-musc.	.05

The Ground and Others sub-group of the AAF (11.35% of the total series) is notable both for excesses of thin men and of sub-medium men of the categories of lesser muscular development. But it also shows an appreciable excess of Thin, medium musculature. In this group, too, are quite large excesses of very fat men, especially those of medium and lesser muscularity. The deficiencies are in the sub-medium, medium, and fat types of superior muscular development. Evidently, thin, this larger non-flying group of the AAF is not nearly as muscular as are those selected for flight, and contains rather large proportions of lean, sub-medium, and fat men who may be presumed to be weak in the second component (mesomorphy).

TABLE 41

MILITARY UNIT

TOTAL AAF (13.52%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Medium fat, musc.	1.50	Thin, medium musc.	8.70
Medium plump, sub-med. musc.	1.30	Thin, sub-med. musc.	4.51
Balanced, short to med.	1.21	Very fat, non-musc.	3.56
Fat, non-muscular	1.15	Very fat, med. musc.	3.19
Fat, medium musc.	.95	Thin, non-musc. elon.	3.04
Sub-med., med. musc.	.82	Sub-med., non-musc.	1.56
		Balanced, tall	1.44
		Sub-med., sub-med. musc.	1.41
		Very fat, very musc.	.77
		Fat, muscular	.49
		Medium plump, non-musc.	.16
		Sub-med., muscular	.07

TABLE 42

RANK AND PERCENT OF GROUPS

ACCORDING TO FREQUENCY IN TOTAL SERIES - MILITARY UNIT

AAF

	<u>Flight</u>	<u>Ground & Others</u>	<u>Total AAF</u>	<u>Total Series</u>
Med. plump sub-med. musc.	15.62	16.09	16.01	17.72
Balanced, short to med.	15.77	14.94	15.07	16.56
Sub-med., sub-med. musc.	14.16	16.65	16.25	14.72
Fat, med. musc.	6.28	7.44	7.26	7.80
Sub-med., med. musc.	7.15	6.24	6.39	6.80
Fat non-musc., sub-med. musc.	5.99	6.02	6.01	6.57
Med. fat, muscular	6.42	4.64	4.93	5.55
Sub-med., non-musc., med. & elong.	6.28	6.04	6.08	5.45
Med. plump, non-muscular	3.21	3.08	3.10	3.06
Thin, non-musc., elongate	2.63	3.78	3.59	2.93
Very fat, med. musculature	2.48	3.44	3.29	2.66
Sub-med., muscular	3.07	2.24	2.37	2.36
Thin, sub-med. musc., elong.	3.65	2.88	3.01	2.25
Fat, muscular	2.34	1.76	1.85	1.79
Very fat, non-musc., sub-med. musc.	.58	2.57	2.25	1.78
Balanced, tall	1.02	.87	.89	.81
Thin, med. musculature	2.77	.81	1.13	.69
Very fat, very muscular	.58	.50	.52	.49

Total AAF Compared with Total Series

If the total AAF be compared with the total series, it can be seen from the table of excesses and deficiencies that the total AAF is especially overloaded with thin men of whatever muscularity and with very fat men of all degrees of muscularity. In the sub-medium category of fleshiness it has strength in those of inferior musculature. In the category of medium fat or, as it is sometimes called, medium plump, there is a strong excess of the Balanced, tall class - a full-bodied, rather long-legged type which is common among students, Old Americans, and some other national extractions. The whole AAF sample is, of course, dominated by the huge non-flying majority, and on this side it is also overloaded with presumably weak, very fat men. This total AAF sample is somewhat deficient in compact, well-muscled men of the lesser degree of body elongation.

Table 42 shows distributions of the classes of body types compared for the subdivisions of AAF, total AAF, and total series. It is clear that the flight subgroup is generally a muscularly superior group, but that when it is lumped in with non-flying personnel there results a total AAF sample distinctive mostly in its overweighting of extremes of thinness and obesity.

TABLE 43

MILITARY UNIT

AGF INFANTRY (33.57%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, med. musc.	8.39	Med. fat, muscular	5.35
Very fat, non-musc.	7.94	Sub-med., muscular	3.04
Very fat, very musc.	5.65	Balanced, short to med.	2.90
Thin, sub-med. musc.	5.12	Sub-med., med. musc.	1.63
Thin, non-muscular	4.02	Sub-med., sub-med. musc.	1.49
Fat, non-muscular	3.89	Med. plump, sub-med. musc.	.61
Med. plump, non-musc.	3.52		
Fat, med. musculature	2.61		
Thin, med. musculature	2.55		
Balanced, tall	1.29		
Sub-med., non-musc.	1.19		
Fat, muscular	.24		

Military UnitAGFInfantry

The combat infantry (33.57% of the total series) is perhaps the corps elite from the point of view of rigid selection of body type. It is deficient in all thin types of whatever muscularity, but its deficiency of thin men is most marked in those of least muscularity. It is also markedly deficient in the sub-medium and medium categories of fleshiness when these categories are associated with the lowest degrees of muscular development. It is notable for rarity of fat and very fat men of whatever musculature, but in the "fat" category (grade 5) the infantry deficiencies decrease as fat is accompanied by increasing muscularity. The infantry excesses are remarkable in the fine Balanced, short to medium type, in the Medium fat, muscular (the "pin-up boys"), in the Sub-medium fat types of sub-medium and better muscularity.

TABLE 44

MILITARY UNIT

AGF EXCEPT INFANTRY (18.40%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Med. plump, non-musc.	1.72	Very fat, very musc.	6.28
Balanced, tall	1.48	Thin, med. musc.	3.82
Fat, muscular	1.38	Very fat, med.musc.	3.32
Med. plump, sub-med.musc.	1.00	Sub-med.,med. musc.	1.21
Very fat, non-muscular	.96	Thin, sub-med. musc.	.90
Balanced, short to med.	.47	Sub-med., muscular	.85
Fat, non-muscular	.18	Med. fat, muscular	.72
Sub-med.,non-musc.	.17	Sub-med.,sub-med.musc.	.39
		Fat, med. musc.	.23

Thin, non-muscular, elongate - no deficiency nor excess.

The AGF, exclusive of infantry, constitutes 18.40 per cent of the total series. As contrasted with total series, it tends to be high in nearly all types in which muscularity is in excess of fattiness and in very fat types of medium or better muscularity. It is deficient in all men of medium plumpness, except Medium fat, muscular.

Evidently this group also is in some way selected for muscularity and there seems to be a curious contra-selection operating against its due representation in the balanced types and the types, also of medium fleshiness, that are of inferior muscularity. The latter is perhaps understandable, the former puzzling.

TABLE 45

MILITARY UNIT

TOTAL AGF (51.97%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	8.91	Med. fat, muscular	6.07
Med. plump, non-musc.	5.23	Sub-med., muscular	3.88
Very fat, med. musc.	5.07	Sub-med., med. musc.	2.84
Thin, sub-med. musc.	4.22	Balanced, short to med.	2.43
Fat, non-muscular	4.07	Sub-med., sub-med. musc.	1.88
Thin, non-muscular	4.03	Thin, med. musc.	1.27
Balanced, tall	2.76	Very fat, very musc.	.63
Fat, medium musc.	2.38		
Fat, muscular	1.62		
Sub-med., non-musc.	1.36		
Med. plump, sub-med. musc.	.39		

As a whole, the AGF, which constitutes 51.97 per cent of the total series, is deficient in every class of body type that could be characterized as of inferior muscular development. But it tends also to fall below parity in every fat and very fat type except Very fat, very muscular. It is also markedly below expectation in Balanced, tall, which, on the whole, appears from its correlations to be a weaker type physically than its appearance would suggest. On the other hand, the AGF is strong in all of the potent muscular types, particularly in the Medium fat, muscular; the Sub-medium, muscular; the Sub-medium, medium musculature; and the great Balanced, short to medium.

Here then we have, par excellence, the major division of the Army that is notable for muscularity (mesomorphy).

TABLE 46

MILITARY UNIT

TOTAL ASF (34.51%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med. musculature	9.97	Very fat, non-musc.	5.35
Med. fat, muscular	4.57	Fat, non-muscular	5.22
Sub-med., muscular	3.96	Med. plump, non-musc.	5.08
Sub-med., sub-med. musc.	3.29	Fat, med. musc.	3.33
Sub-med., med. musc.	2.02	Very fat, med. musc.	1.89
Very fat, very musc.	1.39	Med. plump, sub-med. musc.	1.70
Balanced, short to med.	1.22	Balanced, tall	1.32
Thin, sub-med. musc.	.28	Fat, muscular	1.13
Sub-med., non-musc.	.21	Thin, non-muscular	.99

The Army Service Forces are, in comparison with the entire series, deficient in all types that are essentially muscular, except Fat, muscular, and show excesses of body types that seem physically less potent. On the whole, thin men and men of sub-medium fleshiness (except those least developed in muscularity) seem rare in this branch. There is an overloading with the fat and very fat types that are below the higher grades of muscularity.

TABLE 47

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES - MILITARY UNIT

	AAF TOTAL	AGF TOTAL	ASF TOTAL	TOTAL SERIES
Med.plump,sub-med.,musculature	16.01	17.59	18.59	17.72
Balanced,short to medium	15.07	17.33	15.97	16.56
Sub-med.,sub-med,musculature	16.25	15.25	13.31	14.72
Fat, med. musculature	7.26	7.45	8.56	7.80
Sub-med.,med,musculature	6.39	7.17	6.40	6.80
Fat, non-muscular	6.01	6.05	7.56	6.57
Med. fat, muscular	4.93	6.20	4.81	5.55
Sub-med.,non-musc.,med.&elong.	6.08	5.31	5.42	5.45
Med.plump,non-muscular	3.10	2.76	3.51	3.06
Thin, non-muscular,elong.	3.59	2.71	3.02	2.93
Very fat,med,musculature	3.29	2.40	2.81	2.66
Sub-med.,muscular	2.37	2.54	2.09	2.36
Thin,sub-med,musculature	3.01	2.07	2.24	2.25
Fat, muscular	1.85	1.74	1.85	1.79
Very fat,non-muscular	2.25	1.48	2.06	1.78
Balanced, tall	.89	.76	.84	.81
Thin, med,musculature	1.13	.70	.49	.69
Very fat, very muscular	.52	.49	.47	.49

Comparison of Types by Main Army Units

In Table 47 the distributions of the several main Army units are compared with the body type class distributions of the entire series.

In the three thin classes the AAF ranks consistently first. The AGF ranks last in the first two classes, but rises to second rank in the Thin, medium musculature, which is the thin group physically best developed.

In the four sub-medium classes as regards fat, there is variation according to muscularity. The AAF is first in Sub-medium, non-muscular, and the AGF is last. In the good Sub-medium, sub-medium

musculature class the AAF is first, but the AGF is first in the two other sub-medium classes of superior musculature.

In medium plumpness accompanied by lesser musculature the ASF rates first and AAF and AGF are considerably lower. Thus the greatest numerical class of body type, the Medium plump, sub-medium musculature, is commonest in ASF and least common in AAF, but the weaker Medium plump, non-muscular, shows its least frequency in AGF and, naturally, is at a maximum in ASF.

Balanced, short to medium, is most frequent in AGF, lowest in AAF, but Balanced, tall is highest in AAF. The impressively built Medium fat, muscular type is of course highest in AGF, but ASF leads in all fat (grade 5) types, with AAF tied for first place in the case of Fat, muscular. Curiously, AAF tends to be compounded of mixed categories as regards fat and very fat types, since it either ranks first or last of the units in all of these types.

It may be concluded that, in general, the AGF tends to excel in nearly all of the types that command admiration from the point of view of muscular development. The ASF represents the other extreme. The AAF is mixed with its emphasis upon thinness and obesity (in the ground units) at the expense of middling types.

Stringent selection seems to have operated to give Combat Infantry, and to a lesser extent AGF other than Infantry, and AAF, Flight, certain physical types. ASF and AAF (Ground and Other) seem to have been the dumping grounds of the weaker types.

TABLE 48
MILITARY SPECIALTY - ENLISTED
GUNNERY (20.25%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Very fat, non-muscular	7.80	Sub-medium, muscular	4.03
Very fat, medium musc.	6.95	Medium fat, muscular	2.57
Fat, muscular	4.48	Sub-med., med. musc.	2.27
Very fat, very musc.	4.42	Balanced, short to med.	2.11
Fat, medium musc.	3.06	Sub-medium, non-musc.	1.74
Thin, non-muscular	3.04	Sub-medium, sub-med. musc.	1.29
Fat, non-muscular	2.96	Thin, medium musc.	.15
Balanced, tall	1.81		
Thin, sub-medium musc.	1.46		
Medium plump, sub-med. musc.	.31		
Medium plump, non-musc.	.14		

Gunners are deficient in Thin, non-muscular, and Thin, sub-medium muscular types. They show excesses of all sub-medium (fat) types, but these excesses increase with increasing muscularity so that their largest excess is in the very powerful Sub-medium, muscular group. They are somewhat deficient in the medium plump men of inferior musculature, but they lead all other specialties in the strong Balanced, short to medium type. They are low in Balanced, tall - an apparently unwieldy, perhaps overgrown type. They have a substantial excess in the impressive Medium fat, muscular class, but show marked deficiencies in every fat and very fat type, with the deficiencies decreasing as muscularity of the types increases. This is one of the physically finest and apparently most rigidly selected Army groups, but it fails to show a deficiency in the weak, Sub-medium, non-muscular type.

TABLE 49

MILITARY SPECIALTY - ENLISTED

INTELLIGENCE, RECONNAISSANCE, SECURITY, (6.16%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Sub-med., muscular	1.42	Very fat, sub-med. musc.	1.89
Thin, medium musc.	1.18	Medium plump, non-musc.	1.41
Thin, sub-med. musc.	.83	Balanced, tall	1.22
Sub-med., sub-med. musc.	.73	Fat, non-muscular	.71
Sub-med., non-musc.	.69	Medium plump, sub-med. musc.	.49
Medium fat, muscular	.51	Very fat, medium musc.	.36
Very fat, very musc.	.40	Fat, medium musc.	.19
Balanced, short to med.	.08	Sub-med., medium musc.	.15
		Thin, non-muscular	.08
		Fat, non-muscular	.01

In this group, which constitutes 6.16 per cent of the total series, there is a slight tendency toward deficiency in thin and sub-medium fat types and a slight overweighting with medium fat types of sub-medium or poor muscularity. There is also some excess of the fatter types. On the whole, however, this group is not sharply characterized by any body build trend.

It certainly is composed of men who tend to fall slightly below the highest standards of physical development, although it is by no means overloaded with all the weaklings. For example, it shows moderate excesses of Medium fat, muscular, and Very fat, very muscular, which are actually the most impressive body types.

TABLE 50

MILITARY SPECIALTY - ENLISTED

COMMUNICATIONS (5.64%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	2.76	Thin, non-muscular	3.08
Very fat, musc.	1.60	Thin, medium musc.	2.82
Fat, muscular	1.60	Thin, sub-med. musc.	1.16
Sub-medium, musc.	.61	Fat, non-muscular	.84
Med. plump, non-musc.	.56	Sub-med., non-musc.	.74
Med. plump, sub-med. musc.	.51	Balanced, tall	.51
Very fat, non-musc.	.47	Medium fat, muscular	.31
Fat, med. musc.	.30	Sub-med., sub-med. musc.	.15
Balanced, short to med.	.25	Sub-med., med. musc.	.04

The Communications group, which is 5.65 per cent of the total series, is on the whole notable for deficiencies of fat men and excesses of thin and sub-medium. It is not notably muscular nor markedly weak, but it is on the non-muscular side of average. It is the leading group in Thin, non-muscular, elongate - a very small class of rather weak men.

TABLE 51

MILITARY SPECIALTY - ENLISTED

SUPPLY (11.71%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	4.33	Very fat, med. musc.	7.06
Sub-medium, non-musc.	2.23	Very fat, non-musc.	6.49
Thin, non-musc.	2.08	Fat, muscular	4.44
Sub-med., sub-med. musc.	2.04	Very fat, very musc.	4.12
Medium plump, non-musc.	1.76	Fat, med. musc.	2.86
Thin, sub-med., musc.	1.50	Fat, non-musc.	2.66
Medium plump, sub-med. musc.	.98	Sub-medium, muscular	.93
Thin, medium musc.	.76	Balanced, short to med.	.31
Sub-medium, medium musc.	.74		
Medium fat, muscular	.12		

The supply group (11.71%) is markedly deficient in thin and sub-medium types except Sub-medium, muscular. It is also deficient in medium fat types except Balanced, short to medium. It is overloaded with fat and very fat men. Possibly this supply group gets the most food. Curiously, its only excess in the thinner groups is Sub-medium, muscular.

TABLE 52

MILITARY SPECIALTY - ENLISTED

MAINTENANCE (13.09%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, medium musc.	3.14	Fat, muscular	4.60
Medium plump, non-musc.	2.60	Very fat, very musc.	3.46
Sub-med., non-musc.	1.49	Very fat, med. musc.	2.82
Med. plump, sub-med. musc.	.54	Medium fat, muscular	2.11
Thin, non-musc.	.52	Sub-med., muscular	.99
Sub-med., med. musc.	.47	Very fat, non-musc.	.89
Fat, non-musc.	.39	Balanced, short to med.	.37
Balanced, tall	.39	Thin, sub-med. musc.	.08
Fat, medium musc.	.23		
Sub-medium, sub-med. musc.	.07		

Maintenance (13.09% of the total) tends to be a group in which thin, sub-medium, and medium types in fleshiness are somewhat deficient where their muscularity is weak. However, it shows strong excesses of all dominantly muscular types - sub-medium, medium, and fat.

This group has the highest proportion of Medium fat, muscular, and is next to highest in fat, muscular. However, it also has excesses of all very fat groups irrespective of musculature. (See Table 58)

It is then a muscular, fleshy group, apparently rigidly selected for great weight and strength.

TABLE 53

MILITARY SPECIALTY - ENLISTED

MEDICAL (3.22%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	1.49	Sub-med., med. musc.	1.97
Medium fat, muscular	1.24	Very fat, non-musc.	1.57
Thin, non-muscular	1.18	Fat, non-musc.	.80
Balanced, tall	1.17	Very fat, med. musc.	.69
Sub-medium, muscular	1.06	Med. plump, sub-med. musc.	.44
Thin, medium musc.	.73	Thin, sub-med. musc.	.33
Sub-medium, non-musc.	.73	Fat, med. musc.	.15
Balanced, short to med.	.56		
Very fat, very musc.	.34		
Medium plump, non-musc.	.19		
Sub-med., sub-med. musc.	.13		

The Medical service (which is 3.22% of the total series), shows deficiencies of most thin and sub-medium types, but a curious excess of Sub-medium fat men with medium musculature. (Could these be the stretcher-bearers?) Otherwise it is deficient in all muscular types, but excessive in fat and very fat types that are not outstanding in muscularity.

TABLE 54
MILITARY SPECIALTY - ENLISTED
ENGINEERING (2.38%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, sub-medium musc.	1.49	Very fat, very musc.	1.94
Thin, non-musc.elon.	1.36	Fat, medium musc.	1.21
Balanced, tall	1.15	Fat, muscular	.70
Very fat, non-musc.	.66	Medium plump, sub-med.	
Very fat, med.musc.	.55	musc.	.36
Sub-med., sub-med.musc.	.40	Medium fat, muscular	.32
Sub-med., non-musc.	.38	Sub-medium, muscular	.21
Fat, non-musc.	.34	Balanced, short to med.	.17
Medium plump, non-musc.	.22	Thin, medium musc.	.11
Sub-medium, med.musc.	.20		

Construction and Engineering (2.38% of total series) is definitely deficient in the thin types of inferior muscularity, in sub-medium fat types of medium or less muscularity, and in the fat and very fat of lesser muscularity. It is in excess in all muscular types. It exceeds all other types in Fat, medium musculature. (see Table 58).

TABLE 55

MILITARY SPECIALTY - ENLISTED

TECHNICAL (1.90%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, medium musc.	.90	Sub-medium, med. musc.	.58
Fat, non-musc.	.54	Very fat, non-musc.	.40
Sub-medium, non-musc.	.50	Very fat, medium musc.	.35
Thin, sub-med. musc.	.47	Sub-medium, muscular	.26
Fat, medium musc.	.19	Very fat, very musc.	.26
Balanced, short to med.	.18	Thin, non-musc.	.25
Medium plump, non-musc.	.06	Balanced, tall	.15
Medium fat, muscular	.04	Sub-medium, sub-med. musc.	.11
		Medium plump, sub-med. musc.	.07
		Fat, muscular	.02

The technical group (1.90%) is a small and peculiar group in which Sub-medium, sub-medium musculature (33's) are the second type in rank instead of the third (See Table 58). It ranks very high in very fat men, but has deficiencies of fat (grade 5). It is also notably deficient in thin men of medium muscularity. Evidently it is a job-lot of men chosen for miscellaneous and diverse skills.

TABLE 56

MILITARY SPECIALTY - ENLISTED

TRANSPORTATION (13.46%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Sub-medium, med. musc.	2.77	Thin, medium musc.	2.02
Thin, sub-med. musc.	2.31	Very fat, very musc.	1.71
Sub-med., non-musc.	1.37	Fat, medium musc.	1.43
Thin, non-musc.	1.06	Balanced, tall	1.35
Very fat, non-musc.	.37	Very fat, medium musc.	.94
Fat, non-muscular	.29	Medium fat, sub-med. musc.	.82
Sub-medium, sub-med. musc.	.22	Balanced, short to med.	.56
Medium fat, muscular	.19	Fat, muscular	.45
Sub-med., muscular	.18	Medium plump, non-musc.	.22

The transportation group (13.46% of the total series), which is a specialty, tends to a slight deficiency in the thinner less muscular types, some excess of fatter, more muscular types, and in balanced types.

On the whole it does not depart radically from the total series distribution, but it is more muscular than average.

TABLE 57
MILITARY SPECIALTY - ENLISTED
ADMINISTRATION (22.25%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Very fat, very musc.	3.54	Thin, non-musc.	5.84
Medium fat, muscular	3.21	Balanced, tall	5.62
Very fat, med. musc.	3.21	Thin, sub-med.musc.	5.56
Sub-medium, musc.	3.14	Sub-med., non-musc.	4.91
Fat, muscular	2.83	Medium plump, non-musc.	3.91
Fat, medium musc.	2.56	Sub-med., sub-med.musc.	2.04
Balanced, short to med.	2.45	Thin, medium musc.	1.63
Very fat, non-musc.	1.94	Fat, non-musc.	.22
Sub-med., medium musc.	.84	Medium plump, sub-med.musc.	.15

This group has marked excesses of every thin and sub-medium type of inferior muscularity and of every medium plump type of similar muscular underdevelopment. It has, correspondingly, deficiencies of all well-muscled types, but also of very fat types of whatever musculature. It is highest of all groups in Sub-medium, non-muscular, Sub-medium, sub-medium musculature, and in Balanced, tall (which seems a weak type). (see Table 58)

On the whole, this group seems the weakest (muscularly) of the large military occupation categories.

TABLE 58
RANK AND PERCENT OF GROUPS ACCORDING TO FREQUENCY IN TOTAL SERIES - MILITARY SPECIALTY, ENLISTED

	Gunn.	Intel. Recon. Sec.	Comm.	Trans.	Sup- ply	Maint.	Med.	Engg.	Tech.	Admin.	Total Series
Med. plump, sub-med.musc.	17.56	19.25	16.22	18.93	16.34	17.10	20.29	20.56	18.55	17.96	17.84
Balanced, short to med.	18.26	16.31	15.81	17.23	16.97	17.00	13.63	17.75	15.02	14.72	16.54
Sub-med., sub-med.musc.	15.83	13.10	15.27	14.63	12.27	14.79	14.26	12.39	15.72	16.24	14.87
Fat, med. musculature	6.51	8.54	7.25	8.43	9.53	7.52	8.01	11.55	6.89	6.73	7.66
Sub-med., med.musc.	7.63	7.07	6.95	5.43	6.47	6.65	11.13	6.34	9.01	6.64	6.90
Fat, non-musc., sub-med.musc.	5.48	6.42	7.37	6.28	7.87	6.22	8.01	5.49	4.59	6.48	6.41
Med. fat, muscular	6.29	5.11	5.88	5.50	5.52	6.48	3.43	6.34	5.48	4.78	5.58
Sub-med., non-muscular	5.99	4.89	6.24	4.95	4.46	4.89	4.27	4.65	4.06	6.73	5.52
Med. plump, non-muscular	3.08	3.81	2.79	3.15	2.63	2.48	2.91	2.82	3.00	3.65	3.10
Thin, non-musc. elongate	2.52	2.99	4.58	2.73	2.43	2.84	1.87	1.77	3.36	3.74	2.96
Very fat, med.musc.	1.57	2.72	1.84	2.75	4.12	3.12	3.12	1	3.18	2.20	2.57
Sub-med., muscular	2.80	1.79	2.08	2.30	2.52	2.51	1.56	2.54	2.65	2.00	2.33
Thin, sub-med.musc.	2.10	1.96	2.73	1.88	1.97	2.28	2.50	.85	2.83	2.83	2.27
Very fat, non-muscular	1.08	2.28	1.60	1.70	2.72	1.87	2.60	1.27	2.12	1.60	1.75
Fat, muscular	1.36	1.79	1.25	1.80	2.40	2.35	.94	2.25	1.77	1.52	1.74
Balanced, tall	.74	.98	.89	.90	.52	.79	.52	.42	.88	1.02	.82
Thin, med.musculature	.68	.54	1.01	.78	.63	.51	.52	.70	.35	.72	.67
Very fat, very musculature	.36	.44	.24	.53	.63	.59	.42	.85	.53	.57	.47

Conclusions on Military Specialty - Enlisted

It is clear that selection (both natural or unconscious, and intentional) has operated rather forcefully to differentiate enlisted personnel with respect to military specialty. In a general way, the processes of selection have tended to assign men of good to excellent muscularity (and presumably of superior strength) to some specialties, and to dump the less efficient physical types into other categories of specialization, many of which undoubtedly require more exercise of brain than of brawn, or, at any rate, demand little physical strength. The muscular specialties are Gunnery, Transportation, Maintenance, and Engineering. Within this physically superior moiety are also further selections. For example, gunners incline to leanness and favor the lightweight men of good muscularity. Transportation workers are muscular, but include more of the heavy, muscular types. Maintenance is somewhat similar, but definitely overloaded with the very fat, muscular types and extremely low in lightweights.

The muscularly weaker groups of military specialties are presumably those that do not ordinarily call for great physical exertion. Somewhat undistinguished for muscular development, but not really weak, are the small Intelligence, Reconnaissance, Security; and Communications groups.

Another group of lesser muscular potency but tremendously overloaded with fat and very fat men is Supply. The Medical specialty is composed largely of non-muscular or under-muscled, thin and fat types, but has an interesting excess of a rare body group in which fat (first component) is sub-medium, but muscularity medium (3, 4 in the first two components). These are usually light but powerful men and are commoner in the older age grades. The tiny Technical group is naturally quite miscellaneous. The biggest specialty - Administration - seems to be the resort of the physically weaker types, although it is not overloaded with fat men.

Last our discussion should give the impression that we consider body types good or bad merely in accordance with the amount of muscular development that they exhibit, it should be stated that experience in the study of the human constitution tends, on the whole, to support the generalization that the bone-and-muscle men are less intelligent than either the fatty types or the "string-beans." Consequently, the accumulation of the muscularly less capable or less impressive types in certain military specialties may result in some measure from superior capabilities of a mental and temperamental kind exhibited by men of these types for the tasks which require superior education, advanced technical knowledge, or generally high intelligence.

TABLE 59 (a)

MILITARY SPECIALTY - OFFICERS

GUNNERY AND GUNNERY CONTROL (20.22%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	14.34	Thin, med.musc.	38.60
Med. plump, non-musc.	7.32	Thin, sub-med.musc.	16.82
Fat, non-muscular	5.59	Very fat, very musc.	9.19
Fat, med. musc.	5.00	Fat, muscular	5.42
Very fat, med. musc.	4.84	Sub-med., muscular	3.69
Balanced, tall	3.55	Sub-med., sub-med.musc.	3.11
Sub-med., non-musc.	2.36	Sub-med., med.musc.	3.07
Med. plump, sub-med.musc.	1.63	Balanced, short to med.	2.60
Thin, non-muscular	.87	Med. fat, muscular	.91

Virtually the same proportions of officers as of enlisted men specialize in Gunnery (Officers 20.22%; Enlisted men 20.25%). The Officers are, of course, older and show substantial excesses over the men in the thin types of the better grades of musculature. Also in the sub-medium (fat) types the Officers tend to be stronger than the men in the higher muscular ratings. The Gunnery Officers are much lower than the men in the medium plump types of sub-medium and lesser muscularity. The Officers, perhaps in part on account of their age, tend to run somewhat higher than enlisted men in gross proportions of fat and very fat types. However, their obesity seems to be associated with relatively stronger muscularity than is the case among the enlisted men.

On the whole, it may be concluded that Gunnery Officers are much like Enlisted men in their tendency to emphasize lean types, especially those of superior muscularity and also body types of good muscular development in the heavier builds.

TABLE 59 (b)
MILITARY SPECIALTY - OFFICERS
MEDICAL (10.41%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	10.41	Med. plump, non-musc.	18.62
Sub-med., musc.	8.24	Fat, non-musc.	7.48
Thin, non-musc.	7.18	Fat, muscular	4.97
Thin, sub-med. musc.	6.71	Very fat, med. musc.	4.97
Sub-med., sub-med. musc.	5.74	Fat, med. musc.	4.81
Med. fat, muscular	4.78	Very fat, non-musc.	4.30
Thin, med. musc.	4.53	Sub-med., non-musc.	2.09
Very fat, very musc.	4.53		
Sub-med., med. musc.	3.56		
Balanced, short to med.	1.19		
Med. plump, sub-med. musc.	.86		

The medical specialty in officers is 10.41 per cent of our officer sample, as against 3.22 per cent of the enlisted sample. Of course, all qualified medical men are of officer rank. The officers show a dearth of thin, and sub-medium (fat) types which more or less corresponds to that found among the enlisted men. However, the officers usually carry more flesh than the men, perhaps in part because they are older. In this group the biggest excess is found in the Medium plump, non-muscular class, although the total size of the series of medical officers (only 139 men) makes it inadvisable to stress differences that may be due in part to sampling. Of course, officers have substantially larger proportions of fat and very fat types than the enlisted men of medical personnel and the former are perhaps a little better muscled. In general, the officers parallel men in distribution of types with the notable exception of an absence of an excess of the lean strong class, Sub-medium, medium musculature, which is enigmatically excessive in the enlisted medical personnel.

TABLE 59 (c)
MILITARY SPECIALTY - OFFICERS

ADMINISTRATION (37.23%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med.musc.	19.58	Balanced, tall	21.10
Sub-med., med.musc.	12.57	Very fat, non-musc.	15.71
Med. plump, non-musc.	11.42	Sub-med., muscular	10.60
Fat, muscular	9.02	Very fat, med. musc.	8.92
Sub-med., med.musc.	3.30	Med. fat, muscular	6.43
Balanced, short to med.	2.76	Thin, non-muscular	4.71
Very fat, very musc.	1.94	Fat, non-muscular	4.23
Sub-med., sub-med. musc.	1.90	Med. plump, sub-med. musc.	.36
Fat, med. musc.	.27		
Thin, sub-med. musc.	.19		

37.23 per cent of officers are engaged in Administration, as against 22.25 per cent of enlisted men. Officers agree with the men in their substantial excess of the Thin, non-muscular, elongate class. The men are somewhat stronger in the other lighter and thinner builds until the class of Sub-medium, muscular, is reached. Here administration enlisted men are woefully deficient and the officers show a huge excess. Perhaps the strength of the men in Medium plump, non-muscular at about this level of weight and size should be brought into contrast. The possibly not very strong, Balanced, tall type is in excess in both men and officers, but far more notably in the latter. We have among administration officers a large excess of Medium fat, muscular men, in which again the enlisted men are deficient. In all of the fat and very fat types administration officers are higher than the men, with tendencies in both groups to show deficiencies in types that are fat and muscular or very fat and muscular. Administration officers are in general better muscled than the enlisted men of this category.

Conclusions on Military Specialties in Officers

The small size of our total officer sample prevents analysis of any of their specialties with the exception of Gunnery, Medical, and Administration, which together comprise 67.86 per cent of our officer series.

The gunnery officers show somewhat mixed trends, but on the whole, they are very strong in balanced and muscular types and deficient in fat types.

Medical officers are very low in most of the thinner and the more muscular types and show great excesses of fat and very fat types, especially those of lesser musculature.

The Administration officers have mixed trends with more fat types than the gunners, fewer than the medical officers, and some notable excesses in both lean muscular types and heavy muscular types.

In a general way, the officers seem in the respective military specialties to follow very closely the trends found in those same specialties among enlisted men. Since the officers are older, it is to be expected that they are more commonly fat, but one may hazard the generalization that the officers are also somewhat more heavily muscled than most of the enlisted men in the corresponding specialties.

TABLE 59 (d)

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES - MILITARY SPECIALTY, OFFICERS

	Gunnery	Med.	Adm.	Others	Total Series
Balanced, short to med.	17.41	13.67	14.29	16.08	15.43
Med. plump, sub-med. musc.	13.70	13.67	15.09	15.85	14.91
Sub-med., sub-med. musc.	12.96	5.04	10.66	12.82	11.24
Fat, med. musc.	7.78	15.11	10.26	10.49	10.34
Fat, non-muscular	6.67	15.83	10.26	7.46	9.21
Sub-med., med. musc.	6.30	3.60	3.62	7.69	5.47
Med. fat, muscular	5.56	2.88	6.24	4.90	5.32
Very fat, med. musc.	3.70	7.19	6.04	3.50	4.87
Sub-med., non-musc.	3.70	5.04	3.82	4.66	4.19
Sub-med., muscular	4.07	.72	4.43	2.80	3.45
Fat, muscular	3.70	4.32	2.21	2.80	2.92
Very fat, non-musc.	.74	3.60	3.62	2.10	2.55
Med. plump, non-musc.	1.48	6.47	1.61	2.33	2.32
Thin, non-musc. elongate	2.22	.72	2.62	2.56	2.32
Thin, sub-med. musc.	3.70	.72	2.01	1.40	2.02
Thin, med. musculature	3.70	.72	.60	.70	1.27
Very fat, very musc.	1.85	.72	1.21	1.17	1.27
Balanced, tall	.74	.00	1.41	.70	.90

Significance of Body Type Differentiation by Military Units and Military Specialties

What are the reasons for the clear differentiation of various military units and specialties in body build as reported in the previous sections? It seems probable that by a process of survival and extinction, of trial and error, certain body types have gravitated into the several units and specialties for which, presumably, they are physically and temperamentally the best fitted. The high degree of muscular and of putative physical fitness, with the almost complete absence of fat types, and even of flabby types, in the infantry is an outstanding exemplification of what may be "natural" selection. Evidently, the longer men are in service, the more stringently such processes of selection operate, so that it may be expected that their effects will be much clearer in veterans than in comparatively new recruits. In a future report it is hoped to analyze separately groups of men in their correlates with military function, divided according to age grades.

There can be little doubt that some conscious and intelligent selection has also been exercised in army assignments. For example, the leanness of flight personnel in the AAP may be influenced by the conviction, experience, or impression of procurement officers that flyers should be thin, or that flyers should have college educations (students tend to be thin and elongate), or some other judgment that would tend to select specific types for flight.

Again, there can be no doubt that, after a considerable period of experience in this or that military specialty, the physical requirements of that specialty or the lack of them may affect somewhat the personnel so engaged by modifying their physiques. For example, the supply specialty is overloaded with fat and very fat men. It seems probable that men in the supply corps both avoid arduous physical labors of the combat infantry and are, generally speaking, in a position to have better and more frequent access to the food supplies.

It is at the moment impossible to evaluate the comparative strength of these various selectional and modificatory factors, although their effects are undeniable.

Perhaps a more important consideration - in fact, a vital question - is whether the fact that certain groups of body types tend to be in excess in a specialty means that such types are really the best fitted for that particular specialty or function. If we believe in selectional processes in the animal and plant kingdom - and this is a fundamental tenet of biological and social sciences - we can hardly doubt that the ultimate workings of selectional processes in the Army or anywhere else are likely to result in the mass of the square pegs going into square holes and not round holes.

The only possible negation of this principle would be the conclusion that sheer blind chance operates without any selective force, but simply at random, so that the group of personnel, for example, engaged in administration, would be quite as efficient in infantry combat, if it had happened to be given that function. This is incredible - even in a country where democratic notions of equality of ability and of equality of natural hereditary endowment in physique, temperament, and intelligence are so ridiculously exaggerated and perverted.

It is hardly credible, moreover, that conscious selection on the part of Army authorities responsible for assignment should be able to go so consistently and pig-headedly awry as to bring about the results in an army of millions - or even in a sample of 50,000 drawn from that army - that the bulk of men should be assigned to military functions for which they are physically unfit. No! If the infantry is lean and hard and muscular and devoid of obesity (or nearly so), we can conclude with fair assurance that men of such types are best for the infantry and that infantry service tends to transform those sufficiently plastic in physique into body builds that can perform infantry combat duties.

Of course, it is unfortunate that we have in this survey only data in regard to military assignment and nothing indicating quality of performance. It should be made possible for us to correlate our present data on body build, sociological correlates, etc. with the actual military records of individuals as filed in the Department of the Adjutant General, and with their medical records as deposited with the Surgeon General. Then we should be able to state without equivocation which body types have actually proved themselves the best (or worst) for this or that type of service.

Civilian Occupation

The classification of civilian occupations used in this survey is extremely complicated and sometimes, from the point of view of an investigation of body types, illogical. On account of its intricacy, it has been necessary for us to combine certain categories in order to have large enough samples of the body build classes to permit analysis. Unfortunately such combinations may have the effect of confusing still further categories that are already somewhat unclear.

TABLE 60
CIVILIAN OCCUPATION
STUDENT (18.92%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	9.06	Balanced, tall	10.73
Fat, muscular	8.40	Thin, non-musc.elon.	8.17
Very fat, medium musc.	7.52	Sub-medium, non-musc.	7.19
Fat, medium musc.	6.35	Medium plump, non-musc.	6.61
Very fat, non-musc.	4.94	Thin, Sub-med. musc. Elon.	4.06
Fat, non-musc.	4.09	Sub-med., sub-med. musc.	3.70
Thin, medium musc.	3.21	Medium plump, sub-med. musc.	.53
Sub-med., muscular	2.35	Sub-med., medium musc.	.47
Balanced, short to med.	1.58		
Medium fat, muscular	1.38		

The student group comprises 18.92 per cent of the series. Students are in excess in the thin, sub-medium fat, or medium plump types that are under-endowed as to musculature.

The fatter and the more muscular a man, the less likely he is to be a student. The relation to muscularity seems closer than to fat. Obviously age is responsible in part for these correlations.

TABLE 61
CIVILIAN OCCUPATION
PROFESSIONAL AND SEMI-PROFESSIONAL (4.73%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	1.91	Very fat, med. musc.	3.79
Sub-med., med. musc.	1.34	Very fat, non-musc.	2.55
Sub-med., sub-med. musc.	1.25	Fat, non-muscular	2.29
Sub-med., non-musc.	.88	Thin, med. muscular	1.55
Sub-med., muscular	.63	Fat, med. musc.	.98
Balanced, short to med.	.30	Thin, sub-med. musc. Elon.	.86
Balanced, tall	.30	Fat, muscular	.81
Medium plump, sub-med. musc.	.22	Thin, non-musc.	.59
Medium fat, muscular	.20	Medium plump, non-musc.	.42

Professional and semi-professional occupations constitute 4.73 per cent of those listed. The professional men are then men of poor or sub-medium musculature or fat and very fat men of poor to medium musculature. Muscled men are deficient in the professional class.

TABLE 62

CIVILIAN OCCUPATION

FARMERS, FARM LABORERS (and all other Laborers) (29.14%)

DEFICIENCIES		EXCESSES	
	%		%
Very fat, very musc.	10.83	Med. plump, sub-med. musc.	4.54
Thin, medium musc.	9.24	Balanced, short to med.	2.47
Thin, sub-med. musc. elon.	7.56	Sub-med., non-musc.	1.26
Thin, non-musc. elon.	6.17	Medium plump, non-musc.	.76
Sub-med., muscular	5.59		
Very fat, med. musc.	4.89		
Very fat, non-musc.	4.73		
Sub-med., med. musc.	3.02		
Fat, muscular	2.18		
Balanced, tall	2.15		
Fat, non-muscular	1.31		
Med. fat, muscular	.98		
Fat, med. musc.	.87		
Sub-med., sub-med. musc.	.18		

This large category is deficient in thin men, poorly muscled; in thinnish men, of sub-medium or medium musculature; and in fat and very fat types. Its excesses are in men of medium fat and sub-medium musculature and in balanced types (short to medium).

As a whole its great feature is absence of obesity.

TABLE 63

CIVILIAN OCCUPATION

FARMERS AND FARM LABORERS (22.57%)

DEFICIENCIES		EXCESSES	
	%		%
Very fat, very musc.	12.01	Med. plump, sub-med. musc.	4.83
Sub-med., musc.	7.45	Med. plump, non-musc.	2.40
Thin, med. musc.	7.39	Balanced, short to med.	2.21
Thin, sub-med. musc.	7.20	Sub-med., non-musc.	1.80
Thin, non-musc. elon.	6.37	Fat, non-musc.	.70
Fat, muscular	4.98		
Very fat, med. musc.	4.22		
Sub-med., med. musc.	3.84		
Very fat, non-musc.	3.48		
Med. fat, musc.	2.21		
Fat, med. musc.	1.07		
Sub-med., sub-med. musc.	.54		
Balanced, tall	.45		

When farmers and farm laborers are segregated from other laborers the picture is not perceptibly changed. We still have deficiencies of all thin types, of all sub-medium types except Sub-medium, non-muscular, and of all very fat types.

The lack of obesity still is noticeable, together with the lack of pronounced thinness and general absence of the strongly muscular.

TABLE 64

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES
FARMERS AND FARM LABORERS VS. OLD AMERICANS

	Farmers	Old. Am.	Total Series
Med. plump, sub-med. musc.	21.60	18.31	17.73
Balanced, short to medium	18.26	15.83	16.49
Sub-med., sub-med. musculature	14.24	15.03	14.73
Fat, med. musculature	7.43	7.25	7.78
Sub-med., med. musculature	5.62	6.80	6.89
Fat, non-muscular	6.83	6.83	6.58
Med. fat, muscular	4.99	4.95	5.50
Sub-med., non-muscular	5.85	6.04	5.45
Med. plump, non-muscular	3.43	3.29	3.06
Thin, non-muscular	2.06	3.20	2.96
Very fat, med. musculature	2.16	2.45	2.65
Sub-med., muscular	1.60	2.21	2.35
Thin, sub-med. musculature	1.52	2.41	2.28
Very fat, non-muscular	1.49	1.80	1.79
Fat, muscular	1.42	1.56	1.77
Balanced, tall	.77	.97	.81
Thin, med. musculature	.45	.72	.69
Very fat, very muscular	.23	.35	.50

The farmer and farm laborer series is very close to the Old American series in distribution of body types, but has fewer thin and sub-medium fat types; more plump, sub-medium muscled types; more Balanced, short to medium, and it is a little better set up. It does not closely resemble the National Extraction groups, but is not far from total series.

TABLE 65

CIVILIAN OCCUPATION

SERVICE WORKERS, PROTECTIVE SERVICE WORKERS, OPERATIVES (18.26%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Medium plump, non-musc.	5.38	Very fat, very musc.	12.73
Sub-med., non-musc.	4.40	Very fat, med. musc.	6.25
Thin, sub-medium musc.	3.51	Fat, muscular	5.26
Med. plump, sub-med. musc.	1.92	Thin, med. musc.	3.73
Sub-med., sub-med. musc.	1.52	Very fat, non-musc.	3.59
Thin, non-musc.	1.45	Sub-medium, musc.	3.54
Balanced, tall	.56	Fat, medium musc.	3.42
		Medium fat, muscular	3.17
		Sub-med., med. musc.	1.19
		Fat, non-musc.	.87
		Balanced, short to med.	.04

In order to secure a group large enough for body type analysis, the three above categories have been combined to constitute 18.26 per cent of the series. Such a combination brings about an unfortunate heterogeneity of pursuits in so far as physical requirements, mental requirements, and amount of skill are concerned. However, the Operative classification consists of so many utterly diverse occupations that it seemed little harm could be done in casting another couple of categories into the miscellany, especially since Service Workers and Protective Service Workers contain too few individuals to permit satisfactory separate analysis.

In spite of the disadvantages of the classification and the added disadvantage of the combination, this Service and Operative class stands out for excesses of every fat and very fat type, with such excesses rising to huge gross amounts as muscularity increases. Other excesses are found in the medium fat, sub-medium, and thin types when musculature is medium or better. This occupational combination is low in all types of inferior muscularity except those that are fat or very fat. It is, then, muscular, heavy.

TABLE 66

CIVILIAN OCCUPATION

CRAFTSMEN, FOREMEN (18.94%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	3.90	Very fat, very musc.	7.12
Sub-medium, non-musc.	3.67	Sub-med., musc.	6.06
Thin, non-musc.	3.22	Fat, muscular	5.53
Medium plump, non-musc.	3.15	Sub-med., med. musc.	3.53
Medium plump, sub-med. musc.	2.73	Thin, sub-med. musc.	3.11
Sub-med., sub-med. musc.	.91	Thin, medium musc.	3.05
		Very fat, non-musc.	2.32
		Very fat, med. musc.	2.29
		Fat, medium musc.	2.03
		Medium fat, musc.	1.74
		Balanced, short to med.	.36
		Fat, non-muscular	.19

Craftsmen and foremen (including skilled trades) comprise 18.94 per cent of the occupations in the sample. It is again a miscellaneous occupational category including pursuits with a tremendous variation in physical requirements - all the way from window decorators and tailors to railroad engineers and firemen and sheet metal workers.

It has virtually the same excesses and deficiencies as does the previous class - Service Workers, Protective Service Workers, Operatives - and is almost exactly the same size as regards this series. In body builds we have the same marked deficiencies in the thin and sub-medium fat types of inferior musculature and the same excesses of the lighter men who are medium to good in muscular development; in the medium fat men who are balanced in the first two components or dominantly muscular; the same excesses of all fat and very fat types with the excesses growing more marked as musculature increases. Here then is, again, a muscular group with particular emphasis upon obesity and notably when that fat is well reinforced with musculature.

It is to be remarked that both of these classes have deficiencies of the Balanced, tall type, which is especially common in Old Americans, in the highly educated, etc. and which seems less powerful physically than the Balanced, short to medium class. It is of interest to point out that, while these two classes are very similar in excesses and deficiencies - in fact almost identical - the Craftsmen class carries absolutely smaller excesses of the fat

and very fat types and rather larger deficiencies of the lighter non-muscular types. It is probably less physically diverse than the previous combined classification. The last-named includes the Service workers of a domestic and commercial nature such as barbers, bell-boys, waiters, cooks, etc; the Protective Service Workers (policemen, firemen, etc.); and the Operatives. Evidently we may expect in the first sub-category less physical development in the way of muscularity than in the second or third. Also policemen and firemen tend usually to run to fat, as well as to muscle.

TABLE 67

CIVILIAN OCCUPATION

SALESMEN (2.86)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Very fat, non-musc.	1.29	Thin, sub-med. musc.	2.26
Medium fat, musc.	.85	Fat, non-musc.	.76
Sub-med., muscular	.83	Very fat, very musc.	.66
Thin, medium musc.	.77	Fat, medium musc.	.46
Balanced, tall	.65	Thin, non-musc.	.29
Very fat, med. musc.	.63	Sub-med., non-musc.	.28
Sub-med., med. musc.	.60	Sub-med., sub-med. musc.	.26
Balanced, short to med.	.37	Medium plump, sub-med. musc.	.15
Fat, muscular	.37	Med. plump, non-musc.	.05

Here again is an unsatisfactory classification from the point of view of this analysis, since it takes in everything from news-boys and peddlers to bank representatives, advertisers, and brokers. It is a small category comprising only 2.86 per cent of the total. Its body build excesses and deficiencies are patternless, except in so far as muscularity is usually deficient.

TABLE 68
CIVILIAN OCCUPATION
CLERICAL (5.35%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Balanced, tall	1.81	Thin, medium musc.	3.55
Fat, muscular	1.72	Thin, non-musc.	2.15
Med. fat, muscular	1.08	Thin, sub-med. musc.	1.17
Very fat, med. musc.	.89	Very fat, non-musc.	1.15
Sub-med., muscular	.70	Sub-med., non-musc.	.81
Fat, med. musc.	.44	Med. plump, non-musc.	.59
Balanced, short to med.	.42	Fat, non-musc.	.52
Med. plump, sub-med. musc.	.21	Sub-med., med. musc.	.35
		Very fat, very musc.	.28
		Sub-med., sub-med. musc.	.22

This is a fairly straightforward and reasonable classification, although it includes baggagemen and messengers. It comprises 5.35 per cent of the total. It has notable excesses of very thin types and of all of the sub-medium fat types except Sub-medium, muscular. In the medium fat, fat, and very fat categories, it tends to excesses in the non-muscular or sub-medium muscular classes and to deficiencies in those of superior musculature. This clerical class is low in Balanced, tall, and also low in Balanced, short to medium. It is exactly what might be expected of body build distribution in sedentary occupations, the requirements of which are not muscular or to any great extent physical.

TABLE 69
CIVILIAN OCCUPATION
OFFICIALS (1.80%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	1.36	Very fat, med. musc.	1.61
Sub-med., non-musc.	.58	Very fat, non-musc.	1.35
Sub-med., med. musc.	.57	Thin, med. musc.	1.34
Med. fat, musc.	.42	Fat, muscular	1.07
Thin, sub-med. musc.	.40	Very fat, very musc.	1.02
Thin, non-musc. elon.	.35	Fat, medium musc.	.77
Sub-med., sub-med. musc.	.32	Fat, non-muscular	.77
Balanced, short to med.	.19	Sub-med., musc.	.53
Med. plump, sub-med. musc.	.14	Med. plump, non-musc.	.10

This category comprises 1.80% of the White series, 512 individuals. This extremely mixed category includes government officials and all sorts of proprietors and managers (down to small shopkeepers). No clear cut correlations with physical type can be expected from such a pot-pourri.

However, small deficiencies of this occupation occur in the thin and sub-medium fat types that are non-muscular or sub-medium in musculature and larger excesses in the thin men of medium musculature, the sub-medium fat and muscular, and all fat and very fat types irrespective of muscular development.

Civilian Occupation - Conclusions

The clear-cut occupational classes show marked correlation with body type. Students are likely to be non-muscular or underdeveloped and there is a dearth of fat types. The professional and semi-professional class is loaded with non-muscular and sub-medium muscled men, thin and fat.

The large farmer, farm laborer, and other laborer class contains few fat men, but few exaggerated muscle men. It is overweighted in balanced types and plump men of slight musculature.

The mixed bag of Operatives, Service Workers, and Protective Service Workers is deficient in thin and sub-medium or medium types of poor musculature. It has excesses of all muscular types and especially very fat and very muscular. The Craftsmen, foremen category (also badly mixed), shows similar excesses and deficiencies. These two occupational categories are those strong in muscular men. In this respect they exceed the farmers and laborers.

Salesmen are a miscellaneous category including every kind from hawkers up to wholesalers. Muscular men are deficient in this class. The same is true of the Clerical class which tends to be loaded with underdeveloped men of all degrees of thinness and obesity. Finally the small Official category runs to fat men of whatever musculature.

A better occupational classification would have shown more relation to body type. As it is, we have merely sedentary occupational categories with excesses of the less strongly muscled men, and occupations requiring physical exertion which tend to be high in musculature.

Doubtless the civilian occupational classification adopted for this survey has its merits for purposes other than that of correlation with body build. We perhaps have made a bad matter somewhat worse in the confused occupational categories by some of our combinations of smaller groups necessitated by sizes of the samples. We have not time in the present report to take all of the detailed breakdowns of individual occupation and regroup them so that they are more logical - so that, for example, there would be some real difference between "craftsmen" and "operatives." Yet this labor would be immensely worthwhile, and there is no question that it would clarify enormously the close interrelationships between body build and civilian occupation that are suggested in the present unsatisfactory occupational groupings and are manifest in the few that are straight forward and rational.

TABLE 70

EDUCATION

ILLITERATE, AND READ AND WRITE (4.92%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	1.81	Very fat, non-musc.	2.03
Very fat, very musc.	1.71	Sub-med., non-musc.	.83
Sub-med., muscular	1.45	Fat, muscular	.39
Thin, sub-med. musc.	1.14	Sub-med., med. musc.	.33
Med. plump, non-musc.	.77	Med. plump, sub-med. musc.	.33
Fat, non-muscular	.66	Sub-med., sub-med. musc.	.25
Med. fat, muscular	.62	Thin, med. musculature	.10
Very fat, med. musc.	.35	Balanced, short to med.	.02
Fat, med. musculature	.16		
Thin, non-muscular	.08		

The lowest educational category (illiterates plus those who can read and write but have had no formal education) comprises 4.92 per cent of the total White series. Very small excesses of these poorly educated men are found among several thin and sub-medium fleshy types. However, the highest excess is in Very fat, non-muscular, or sub-medium (2.03%). A big deficiency in Balanced, tall, suggests the rarity of this overfed, overgrown type in the groups of lower educational and economic status. But, on the whole, there is little evidence of any body type selection for extreme educational deficiency.

TABLE 71

EDUCATION

GRADE (45.63%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	7.50	Balanced, short to med.	6.90
Thin, sub-med. musc.	5.57	Very fat, very musc.	4.37
Thin, non-muscular	3.76	Sub-med., musc.	3.77
Very fat, non-musc.	1.78	Med. fat, muscular	3.63
Sub-med., non-musc.	1.76	Fat, muscular	2.16
Sub-med., sub-med. musc.	1.57	Sub-med., med. musc.	1.40
Fat, non-musc.	.76	Med. plump, non-musc.	.64
Very fat, med. musc.	.74	Thin, med. musc.	.03
Fat, med. musc.	.48	Med. plump, sub-med. musc.	.02

TABLE 72

EDUCATION

HIGH, AND SPECIAL TRAINING (46.31%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	4.00	Balanced, tall	8.94
Very fat, non-musc.	2.99	Thin, sub-med. musc.	7.05
Fat, muscular	2.95	Thin, non-muscular	4.71
Very fat, med. musc.	2.51	Sub-med., sub-med. musc.	2.11
Sub-med., muscular	2.12	Sub-med., non-musc.	1.80
Thin, med. musculature	2.02		
Med. fat, muscular	1.87		
Balanced, short to med.	1.60		
Fat, non-muscular	1.10		
Sub-med., med. musc.	.52		
Fat, med. musculature	.46		
Med. plump, sub-med. musc.	.06		
Med. plump, non-musc.	.04		

Grade School, High School and Special Training

Grade school education only has been received by 45.63 per cent of this Army sample of Whites. Deficiencies in the Grade category usually imply excesses of those with High School education or better (46.31% of the total). Excesses and deficiencies of these two educational categories may then be discussed together.

Types presenting combinations of Grade deficiency and High School excesses are: Thin, non-muscular, elongate (Def. 3.76%, Excess 4.71%); Thin, sub-medium musculature, elongate (Def. 5.57%, Excess 7.05%); Sub-medium, non-muscular (Def. 1.76%, Excess 1.80%); Sub-medium, sub-medium musculature (Def. 1.57%, Excess 2.11%).

Types presenting excesses of Grade School education and deficiencies of High School are: Sub-medium, medium musculature (Excess 1.40%, Def. 0.52%); Sub-medium, muscular (Excess 3.77%, Def. 2.12%); Balanced, short to medium (Excess 6.90%, Def. 1.60%); Medium fat, muscular (Excess 3.63%, Def. 1.87%); Fat, muscular (Excess 2.16%, Def. 2.95%); Very fat, very muscular (Excess 4.37%, Def. 4.00%).

The above listings present a dismal picture of the better developed and stronger body types (from a muscular point of view) being in excess among those who have had only a grade school education and deficient in those who have completed high school. The suggestion is that the more education, the weaker the physical type. Before we discuss these implications further, we may well consider the highest educational category (College, Post-graduate and Professional).

TABLE 73

EDUCATION

COLLEGE, POST-GRADUATE AND PROFESSIONAL (3.14%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Sub-med., med. musc.	1.21	Very fat, med. musc.	3.60
Med. fat, musc.	1.14	Very fat, non-musc.	2.74
Thin, non-musc.	.88	Fat, non-muscular	2.52
Sub-med., non-musc.	.87	Thin, med. musc.	1.88
Sub-med., sub-med. musc.	.79	Fat, med. musc.	1.09
Thin, sub-med. musc.	.34	Fat, muscular	.40
Med. plump, sub-med. musc.	.29	Balanced, tall	.36
Sub-med., muscular	.20	Med. fat, non-musc.	.18
Balanced, short to med.	.15	Very fat, very musc.	.07

The group with the highest educational qualifications constitutes only 3.14 per cent of the enlisted total White series. It shows excess of every fat and very fat type of body build, deficiencies of every sub-medium (fleshy) build. It is also deficient in the medium (grade 4) categories of body build when this grade of fatty development has sub-medium or better musculature, except Balanced, tall. The last named type is in moderate excess, as is also the Medium plump, non-muscular (but slightly and perhaps insignificantly). Fat and very fat types are most in excess in this highly educated group when they are inferior in muscularity. However, there is in this highly educated class an excess also of thin men of medium musculature, who are, in general, a lean, hard, well-developed class of body build. By and large, then, the college and professional group tends toward obesity and relatively poor muscularity. To some extent the fatty tendency is certainly connected with the fact that these men must be, in the most of cases, well past 21 years of age. Again, most of them have probably engaged in civilian callings that require small physical exertion.

TABLE 74

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES - EDUCATION

	Illit. R & W.	Grade	High Spec. Tr.	Coll. P. G. Prof.	Total Series
Med. plump, sub-med.musc.	18.87	17.70	17.67	16.06	17.69
Balanced, short to medium	11.61	17.18	15.98	15.76	16.55
Sub-med., sub-med.musc.	15.45	14.20	15.38	11.01	14.71
Fat, med.musc.	7.53	7.71	7.71	10.51	7.79
Sub-med., med.musculature	7.34	7.09	6.80	4.24	6.88
Fat, non-musc.	5.67	6.44	6.39	11.82	6.55
Med. fat, muscular	4.83	5.98	5.31	3.54	5.54
Sub-med., non-muscular	6.37	5.25	5.67	3.94	5.46
Med. plump, non-muscular	2.58	3.10	3.05	3.23	3.06
Thin, non-musc.	2.90	2.70	3.24	2.12	2.95
Very fat, med.musculature	2.45	2.59	2.49	5.66	2.63
Sub-med., muscular	1.67	2.57	2.27	2.22	2.37
Thin, sub-med.musculature	1.74	1.99	2.61	2.02	2.26
Fat, muscular	1.93	1.88	1.68	2.02	1.79
Very fat, non-muscular	2.51	1.71	1.66	3.33	1.78
Balanced, tall	.52	.68	.97	.91	.81
Thin, med.musculature	.71	.69	.66	1.11	.69
Very fat, very muscular	.32	.54	.45	.51	.49

Conclusions on Education

Although there seems to be little if any selection operative as regards body build in the lowest educational category of persons who are illiterate or who have received no formal schooling, it is clear enough that above this grade potent selective forces have been at work. The muscular men tend to have received only grade school education; the high school educated are much less developed in the second component; the college graduates tend to be fat and flabby.

Table 74 lists the total frequency of the body type classes in each of the education categories. It will be noted that the college group is the most divergent, probably in part on account of being older. The Grade and High School groups resemble each other in general, but in most body builds of the more muscular types, the Grade group shows its superiority, and in most non-muscular types the reverse is true. A close inspection of the illiterate category in comparison with Grade and High School reveals that, on the whole, the most poorly educated seem inferior in muscular development to both of the next two higher categories, but they are superior in most muscular body builds to the college group and inferior in fat.

If muscularity graded regularly down from illiterates to college graduates, one could make a spacious generalization. However, the regression is not so linear. Illiterates are physically inferior to the men who have had moderate to good but not superior educations. Presumably, these illiterates come from economically as well as educationally backward area of the country where physical development is poor, whether because of diet, stock, or what not. Certainly, the illiterates must perform mainly manual labor, when they work at all. They appear then to be constitutionally depressed and slightly inferior. The superiority (again muscular) of Grade School men over High School men must stem to some extent from the fact that persons with such limited educations are likely to engage in vocations that demand physical activity and those better educated in sedentary occupations. However, a moment's reflection convinces the thinker that we cannot argue one way for illiterates and another way for the better educated. If poor education makes men muscular through occupational restrictions the illiterates ought to be most muscular. Yet, it is not really a dilemma. The callings which seem to involve best muscular development, as we have seen in a preceding section, are not undifferentiated labor and agricultural work, but certain industrial and mechanical pursuits. Men in these pursuits need at least grade schooling and they need some physical strength. It is probable, however, that the deciding factors may be stock (in the sense of national descent) and residence in industrialized areas as contrasted with rural areas. The foreign born (especially from Eastern and Southern Europe) are high in muscularity and heavy-set body builds. They are also resident largely in the industrial areas and perhaps predominantly engaged in factory operative or mechanical tasks. They may be and probably are adequately nourished.

Professional men are naturally older and fatter and flabbier than manual and industrial workers of military age, not because the latter must be young, but because the former have to be older (to have completed their long educations). Professional workers usually are sedentary and are not required to exercise their muscular systems.

But over and beyond all of these environmental considerations, there remains the very high probability that some body types are inherently and constitutionally oriented toward education, on the one hand, or against it, on the other. Highly educated men may be less muscular because they are more intelligent. Muscular strength and educability may be negatively correlated. We cannot explain everything away by saying that muscularity depends entirely upon environment, in this case degree of physical exercise demanded by occupation.

TABLE 75

MARITAL STATUS

SINGLE (56.99%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	21.73	Sub-med., non-musc.	16.63
Fat, musc.	19.31	Thin, non-musc. elon.	14.76
Very fat, med. musc.	16.28	Med. plump, non-musc.	11.13
Fat, med. musc.	14.72	Balanced, tall	6.82
Very fat, non-musc.	10.45	Thin, sub-med. musc. elon.	6.24
Thin, med. musc.	9.26	Sub-med., sub-med. musc.	6.14
Sub-med., musc.	7.92	Med. plump, sub-med. musc.	3.73
Fat, non-muscular	7.90		
Medium fat, musc.	4.03		
Balanced, short to med.	1.25		

Single men comprise 56.99 per cent of the series and show tremendous excesses of thin, sub-medium fat, and medium fat types which are non-muscular or of sub-medium muscular development. They are also very high in the Balanced, tall group (which does not look to be a physically powerful class). On the other hand, they show marked deficiencies of the thin, sub-medium, and medium fat types that are of medium or better musculature, and tremendous deficiencies of all fat and very fat types irrespective of musculature. Celibacy drops with increasing musculature and increasing obesity. Doubtless, these phenomena are to be connected in large measure with the fact that the youngest men are likely to be unmarried and that increasing age carries with it more fat, more marriage liability. Notice, however, that even in the fat and very fat categories, the deficiencies in celibacy increase with increasing musculature, as also in the thin and sub-medium and medium fat groups. Therefore, it appears that celibates are more likely to be non-muscular or poor in muscular development irrespective of age.

TABLE 76

MARITAL STATUS

MARRIED (41.86%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Sub-medium, non-musc.	15.95	Very fat, very musc.	21.60
Thin, non-muscular	14.15	Fat, muscular	19.06
Med. plump, non-musc.	11.01	Very fat, medium musc.	15.88
Balanced, tall	6.06	Fat, medium musc.	14.29
Sub-med., sub-med. musc.	5.78	Very fat, non-musc.	9.65
Thin, sub-med. musc.	5.51	Fat, non-musc.	7.76
Med. plump, sub-med. musc.	3.53	Sub-med., musc.	7.47
Sub-medium, medium musc.	.07	Thin, med. musc.	7.23
		Med. fat, musc.	3.50
		Bal., short to med.	1.25

Married men constitute 41.86 percent of the series. The relationships between "married" status and body type are naturally the converse of those obtaining between "single" and body type. Every fat and very fat type shows large excesses of married men and these excesses increase enormously with musculature. For example, Very fat, non-muscular or sub-medium musculature has an excess of 9.65 per cent of married men; Very fat, medium musculature, 15.88 per cent; and Very fat, very muscular, 21.60 per cent. In the thin, sub-medium, and medium fat types marriage also seems to increase with musculature.

TABLE 77

MARITAL STATUS

DIVORCED, SEPARATED, WIDOWED (1.14%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	.75	Thin, medium musc.	2.04
Thin, sub-med. musc.	.72	Very fat, non-musc.	.81
Sub-med., non-musc.	.68	Medium fat, musc.	.74
Thin, non-musc. elon.	.60	Sub-med., muscular	.46
Sub-med., sub-med. musc.	.34	Fat, medium musc.	.44
Medium plump, sub-med. musc.	.19	Very fat, med. musc.	.41
Medium plump, non-musc.	.10	Sub-med., med. musc.	.38
		Fat, muscular	.27
		Fat, non-musc.	.16
		Very fat, very musc.	.14
		Balanced, short to med.	.01

The men who are divorced, separated or widowed constitute 1.14 per cent of the whole series and 2.72 per cent of those who have been married. They naturally include excesses, then, of all fat and very fat types and of the leaner types that are

well developed in musculature. It is interesting to note that by far the highest excess in this category of divorced or separated (or widowed men) lies in the Thin, medium musculature class, which is the only thin class that is excessively married. There is an intriguing suggestion also that among the very fat the separation status declines with increasing muscularity. This suggestion is imperfectly borne out in the fat class. Of course, this is a very small sample totaling only 362 men. It carries a hint that the body types that are found in divorced and separated men include a slight over-representation of those structural component developments that are ordinarily found in celibates.

TABLE 78

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES - MARITAL STATUS

	Single	Married	Div., Sep., Wid.	Total Series
Med.plump,sub-med.musc.	18.86	16.21	14.64	17.71
Balanced,short to med.	16.15	17.01	16.57	16.52
Sub-med.,sub-med.musc.	16.29	12.67	10.22	14.70
Fat,med.musculature	5.78	10.44	10.77	7.79
Sub-med.,med. musc.	6.83	6.85	9.12	6.87
Fat, non-muscular	5.65	7.78	7.45	6.57
Med. fat,muscular	5.16	5.98	9.12	5.55
Sub-med.,non-muscular	7.04	3.37	2.21	5.45
Med.plump,non-muscular	3.65	2.25	2.76	3.05
Thin, non-muscular	3.70	1.95	1.38	2.94
Very fat, med.musc.	1.90	3.66	3.59	2.65
Sub-med.,muscular	2.04	2.79	3.31	2.37
Thin,sub-med.musc.	2.52	1.97	.83	2.27
Fat, muscular	1.19	2.61	2.21	1.79
Very fat,non-muscular	1.45	2.19	3.04	1.78
Balanced, tall	.91	.69	.28	.81
Thin, med.musculature	.58	.82	1.93	.70
Very fat,very muscular	.30	.75	.55	.49

Marital Status - Conclusions

Table 78 shows the distribution of body types in the three marital status categories and adds a little information to the preceding discussions of excesses and deficiencies. Naturally, since the types that are excessively married are all fat and very fat types and the thinner and sub-medium men of the better grades of muscular development, it will follow that those who are divorced, separated, or widowed excessively are selections from the types that are more usually married. If the representation in the divorced category is greater than in the married

category, the suggestion is that the men of this body type are more likely to be divorced, and vice versa. Types that show a higher divorced than married rate are: Fat, medium musculature; Sub-medium, medium musculature; Medium fat, muscular; Medium plump, non-muscular; Sub-medium, muscular; Very fat, non-muscular and sub-medium; Thin, medium musculature.

There is then an interesting but precarious suggestion that of the excessively marrying types, divorced, separated, or widowed men are likely to be more common among the thin, sub-medium, and medium fat men who are muscular and among the fat and very fat men who are less well muscled. This hint may prove to be illusory and it cannot be investigated further in a report of this scope and purpose.

TABLE 79
RELIGIOUS AFFILIATION
PROTESTANT (69.67%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Very fat, very musc.	13.26	Balanced, tall	9.94
Fat, musc.	11.26	Thin, med. musc.	4.76
Sub-med., musc.	6.95	Thin, non-musc.elon.	3.76
Medium fat, musc.	6.43	Sub-med., sub-med.musc.	3.17
Very fat, med. musc.	5.20	Med.plump, sub-med.musc.	2.89
Very fat, non-musc.	3.42	Sub-med., non-musc.	2.34
Fat, med. musc.	3.17	Med. plump, non-musc.	1.25
Balanced, short to med.	1.32	Sub-med., med.musc.	.78
		Thin, sub-med.musc.	.74
		Fat, non-muscular	.14

69.67 per cent of the total White series are Protestants. These include moderate excesses of every thin type, of every sub-medium fat type, except Sub-medium, muscular; of the medium fat types that are below medium in muscularity; of the Balanced, tall type. The excess in the last named is the maximum (9.94%). Conversely, deficiencies of Protestants are found in sub-medium and medium fat types of medium or better muscularity; in fat types of medium or better muscularity; and in all very fat types. In short, Protestants tend toward leanness and underdevelopment of muscle.

TABLE 80

RELIGIOUS AFFILIATION

CATHOLIC (26.34%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Balanced, tall	9.09	Very fat, very musc.	12.12
Medium plump, non-musc.	4.95	Fat, muscular	11.71
Med. plump, sub-med. musc.	3.29	Med. fat, muscular	7.28
Thin, med. musc.	2.60	Sub-med., muscular	6.55
Fat, non-musc.	2.57	Fat, med. musc.	2.51
Thin, non-musc. Elon.	2.15	Very fat, med. musc.	2.49
Sub-med., sub-med. musc.	2.07	Balanced, short to med.	2.14
Sub-med., non-musc.	1.97	Thin, sub-med. musc.	.87
Very fat, non-musc.	1.70	Sub-med., med. musc.	.44

26.34 per cent of the White series is Catholic. Men of this religious affiliation tend to be somewhat deficient in thin types of lesser muscularity. But they are in moderate excess when thinness or sub-medium fleshiness is associated with sub-medium to medium muscularity. This excess becomes marked in Sub-medium, muscular (6.55%) and in Medium fat, muscular (7.28%). Again, Catholics are deficient in the medium plump types of inferior muscularity, but slightly in excess in Balanced, short to medium. In the Balanced, tall type they are notably deficient (9.09%).

In the fat and very fat types Catholics show excesses if musculature is medium or better, otherwise deficiencies.

In brief, Catholics are disproportionately high in muscle men.

TABLE 81

RELIGIOUS AFFILIATION

JEWISH (2.53%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, medium musc.	2.53	Very fat, non-musc.	3.90
Thin, sub-med. musc.	1.69	Med. plump, non-musc.	3.49
Thin, non-musc. Elon.	1.45	Fat, non-musc.	2.30
Sub-med., muscular	1.20	Very fat, very musc.	1.96
Sub-med., med. musc.	1.10	Very fat, med. musc.	1.90
Sub-med., sub-med. musc.	1.00	Fat, med. musc.	.85
Bal., short to med.	.80	Med. plump, sub-med. musc.	.48
Med. fat, musc.	.64		
Balanced, tall	.57		
Fat, muscular	.23		
Sub-med., non-musc.	.14		

There are only 799 Jews among the enlisted men of this series (2.53%). They are markedly deficient in every thin type and every

sub-medium fat type, irrespective of muscularity, but these deficiencies increase with increasing muscularity of the several types. In the types of medium fleshiness (grade 4 in the first component) Jews show excesses of those body build classes in which musculature is sub-medium or less. They show excesses of all fat body builds except Fat, muscular, and of all very fat builds. In any body build class in which Jews are in excess, the excess is usually so large as to make the proportion of Jews more than twice expectation. The only dominantly muscular type in which there are excesses of Jews is Very fat, very muscular; but there are also excesses of this religious affiliation in the fat and very fat men of medium musculature.

Jews are, then, outstanding for obesity and plumpness associated, in the most of cases, with lesser degrees of muscular development.

TABLE 82

RELIGIOUS AFFILIATION

OTHER (1.46%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	.82	Sub-med. musc.	1.60
Balanced, tall	.28	Very fat, non-musc.	1.22
Medium fat, muscular	.26	Very fat, med. musc.	.81
Sub-medium, non-musc.	.24	Thin, med. musc.	.37
Fat, muscular	.22	Med. plump, non-musc.	.20
Fat, medium musc.	.20	Fat, non-musc.	.13
Thin, non-musc. elon.	.16	Thin, sub-med. musc.	.08
Sub-medium, med. musc.	.12		
Sub-medium, sub-med. musc.	.10		
Medium plump, sub-med. musc.	.08		
Balanced, short to med.	.02		

This is a miscellaneous group, 1.46 per cent of the series, showing no clear trend.

TABLE 83

RANK AND PERCENT OF GROUPS ACCORDING TO
FREQUENCY IN TOTAL SERIES - RELIGIOUS AFFILIATION

	Protestant	Catholic	Jewish	Total Series
Med. plump, sub-med. musc.	18.44	15.50	21.03	17.70
Balanced, short to med.	16.22	17.88	11.26	16.53
Sub-med., sub-med. musc.	15.38	13.56	8.89	14.71
Fat, med. musc.	7.43	8.52	10.39	7.78
Sub-med., med. musc.	6.95	6.98	3.88	6.87
Fat, non-musc.	6.58	5.92	12.52	6.56
Med. fat, musc.	5.03	7.08	4.13	5.54
Sub-med., non-musc.	5.62	5.03	5.13	5.44
Med. plump, non-musc.	3.11	2.48	7.26	3.05
Thin, non-musc.	3.10	2.70	1.25	2.94
Very fat, med. musc.	2.45	2.90	4.63	2.65
Sub-med. muscular	2.14	2.97	1.25	2.38
Thin, sub-med. musc.	2.29	2.34	.75	2.26
Fat, muscular	1.50	2.59	1.63	1.79
Very fat, non-musc.	1.69	1.66	4.51	1.78
Balanced, tall.	.92	.53	.63	.81
Thin, med. musc.	.74	.63	.00	.69
Very fat, very musc.	.40	.72	.88	.49

Religious Affiliation - Conclusions

The ranking table, Table 83, shows very clearly the vast difference between religious affiliations. Protestants rank first in all thin and sub-medium fat types of poor to sub-medium musculature except in Thin, sub-medium musculature, elongate, in which the Catholics have an insignificant superiority. Jews are third in all thin classes and in all sub-medium fat classes except Sub-medium, non-muscular, in which they rank second. Catholics rank first in the sub-medium fat classes of good to superior muscularity, Protestants second. In the medium fat classes of sub-medium to poor muscularity, the Jews rank first, the Protestants second, the Catholics third. In the strong Balanced, short to medium, the rankings are reversed. In Medium fat, muscular, we have Catholics first, Protestants second, Jews third. In every fat and very fat class Jews are first, except in Fat, muscular, where the Catholics take first place. The Protestants are usually in third place in fat and very fat types, but they rise to second place in those that are non-muscular or sub-medium.

In general, then, the Protestants tend to thinness and poor muscularity or to plump and fat, but not very fat, types of inferior muscularity. Above all they are lean and poorly muscled (in excess).

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The Catholics are heavy and muscular, or light and muscular. They are lower in lean and sub-medium fat men than are the Protestants and far below the Jews. The Jews are notably plump and obese.

The reasons for these differences are not connected with religion, but almost certainly with national extraction (and to some extent with occupation). Thus, the Protestants owe their leanness in large part to their Old American, British, and Scandinavian extraction. The Catholics are muscular and heavy because the majority of them belong to the Southern Mediterranean-Near Eastern, Balto-Ugric, and other extractions of Central or Eastern European origin that are strong in these stocky, powerful body builds.

The Jews owe their peculiar body builds to their ethnic distinctiveness (what the layman is likely to miscall "race"), and probably also to a variety of environmental factors including sedentary occupations, diet, etc.

These body builds are notably differentiated according to religious extraction, but there is no casual relationship in this correlation.

HEIGHT/CUBE ROOT OF WEIGHT OR RELATIVE BODILY FULLNESS (ATTENUATION) AS A SEPARATE COMPONENT

Because the body build types, as here treated, have been grouped according to combinations of the first and second components - fat and muscularity - these categories often include considerable variation in relative attenuation or bodily fullness - which is expressed by height divided by the cube root of weight, with the total range of this index divided into a seven step scale. It is therefore desirable to deal with the relationships of this third component - relative attenuation or bodily fullness - in a separate series of tables.

In the gradations of this component the numbers 1 to 7 define categories in which the quotient of height divided by the cube root of weight (both expressed metrically) increases. Thus 7 indicates the highest degree of bodily attenuation or the greatest height relative to cube root of weight, and 1 the least. Short, heavy men fall in the lower steps of the scale; very tall, skinny men at the other end of the range. This third component, here called attenuation, corresponds more or less closely to the Sheldonian concept of ectomorphy, but is based only upon height-weight and includes no subjective morphological ratings. To give positive morphological ratings of the third component involves a scale in which fat and muscularity are marked twice - once for development, once for lack of it.

Age and Attenuation

The total series distribution of the seven grades of attenuation indicates that the category 7 is very rare (approximately .37% of the series). Next in rarity is 1 (1.60% of the series). Grade 2 occurs in 8.48 per cent as against only 3.74 per cent of grade 6. Grade 3 is found in 27.34 per cent as against 20.11 per cent of 5. The modal value is 4 with 39.41 per cent. On the whole then, the series is skewed toward low values of the index - toward high values of weight relative to stature, toward the short heavy body types. Grade 1 > 7; Grade 2 > 6; Grade 3 > 5).

In the first age category - 17, 18, 19, it is clear that all the lower grades of this bodily fullness or attenuation index show marked deficiencies, whereas there are pronounced excesses of 5's, 6's, 7's. The 20 year age group shows virtually the same relationships with slightly less over-weighting of the higher grades. In the 21-25 year age category there are still very small deficiencies of 1's and 2's. However, this age distribution is close to that of the total series. At 26-30 years the relationship is reversed and there are excesses of 1's, 2's, and 3's, deficiencies of all the higher ratings. Similar but greater excesses and deficiencies occur in the final 31-62 age grouping.

It is, therefore, apparent that the older age groups are overloaded with men whose weight is large relative to height and who tend to be relatively short and heavy, whereas the reverse is the case among the young men. Parity is reached at 21-25. These shifts in the attenuation index are in part age changes owing to the weight increment of full maturity. They may be the expression also in part of some selection against the elongate thin types.

Taking the separate grades of attenuation the 1's (least attenuation) are at a minimum in the first two age groups and thereafter increase regularly to three times initial strength in the final group.

The 2's increase regularly in age groups, reaching more than 3 times initial strength in the final group.

The 3's increase also, with the exception of a slight and at present inexplicable drop at age 20.

The 4's decrease, with a very slight 20 year irregularity.

The 5's decrease regularly to a little more than half initial strength.

The 6's decrease regularly to less than half initial strength.

The 7's decrease irregularly.

Months of Service and Attenuation

The relationship of length of service to degree of attenuation is far less than that of attenuation to age. No grade of attenuation shows a regular and consistent increase and decrease, although, on the whole, 1's and 2's tend to increase with length of service, while 5's and 6's decrease.

Birthplace and Attenuation

Foreign born subjects show clear excesses of 1's, 2's, and 3's and deficiencies of 4's, 5's, and 6's. They thus tend to be relatively short and heavy. The New England group shows similar but not quite so marked excesses and deficiencies, probably because of its predominantly recent foreign extraction. The same tendencies in a more pronounced degree are found in the Middle Atlantic group. This group is closest in distribution of attenuation to the foreign born. East North Central shows no clear trend of difference from the total series in the height-weight relationship. Nor does West North Central. The South Atlantic district shows marked deficiencies of 1's, 2's, and 3's; marked excesses of 5's, and 6's. It therefore

is distinguished by dearth of short, squat men and abundance of the attenuated types. East South Central exaggerates the same tendency. This is true also of West South Central, which is poor in the lower ratings and very strong in 5's, 6's, and 7's. The Mountain States district shows deficiencies of 1's and 2's and 5's and 6's. It has strong excesses of 3's and 4's. The Pacific States are also very low in 1's and 2's and show excess of 5's, 6's, and 7's.

In general then Foreign born, New England, and Middle Atlantic are notable for low values of this attenuation index; South Atlantic, East South Central, West South Central, and Pacific for the reverse.

National Extraction and Attenuation

There is, of course, a remarkable relationship between national extractions and the attenuation index. The Near Eastern-Mediterranean-Southern Slavic and the Balto-Ugric-Slavic-Russian groups show very great excesses of 1's, 2's, and 3's and corresponding deficiencies of 4's, 5's, 6's, and 7's. These are more marked in the Mediterranean group than in the Balto-Slavic group. The group of Germanic extraction is in a somewhat intermediate position with slight excesses of 2's, 3's, and 4's, and moderate deficiencies of 5's and 6's. The Scandinavian group shows a skewing toward the medium and slightly attenuated elongate body builds (4's and 5's). This tendency toward the higher degrees of attenuation is more pronounced in the British. It reaches its maximum in the Old Americans, with marked dearths of the lower ratings and substantial excesses of 5's and 6's. The Irish stand somewhat alone in excesses of 3's and 4's, accompanied by deficiencies of 2's and 6's.

Outstanding in the relationship between body build attenuation and national extraction is, then, the short squat builds of the Central, Southern, and Eastern European strains, as contrasted with the elongated, usually thin builds found in the stocks of Northwestern European origin (Scandinavian, British, Old American, but not Irish).

Rank and Attenuation

In this index privates are high in the middle ranges, low in the extremes. Officers tend to stress, on the contrary, some of the lower and higher ratings, while non-coms are generally intermediate.

Military Unit and Attenuation

Air Force

Air Force flight personnel is very low in 1's, 2's, and 3's; very high in 4's, 5's, and 6's. Thus the body builds represented in this military unit tend to be relatively tall and slender. All other air force personnel shows mixed trends. In other words, the air force personnel, apart from the flight subgroup, seems to run to extremes of body build, both short and squat, and tall and slender.

Combat Infantry, All Other, Subtotal

The combat infantry is overloaded with 3's and 4's and shows deficiencies of the other height-weight relationships in body build. Undoubtedly this fact is due to the high muscularity of the combat infantry which is commonly associated with values of 3 and 4 in the third structural component. The opposite trend is shown in the AGF, other than infantry. As a whole, the AGF is up in 3's and 4's and down in other body index builds, because of the overweighting by the combat infantry. It is perhaps important to note that combat infantry tends to deficiencies of body builds in which both squatness of body build, or relatively short lower extremities, and attenuation of body build (usually connected with relatively elongated lower extremities), are emphasized. The ASF is overweighted with 1's, 2's, 3's. It is weak in 4's, 5's, slightly high in 6's.

The only conclusions desirable from this section are that as regards the third component - measured by the attenuation index - flight personnel is notably elongate; combat infantry is remarkably "middling;" and the units less stringently selected for body build (accidentally or intentionally) tend to go to both extremes. Nearest total series distribution is perhaps the AGF subtotal.

Military Specialty and Attenuation

These attenuation relationships with military specialty are not meaningful when taken in isolation.

Education and Attenuation

There is no close consistent relationship between the illiterate category and the height-weight index, nor, in general, between education and this index. The High School and Special Training group is higher in attenuation than the Grade, which in turn surpasses the Illiterate, Read and Write class. It is to be noted, however, that the most highly educated group shows strong excesses of 1's, 2's, 3's, strong deficiencies of 4's, 5's, but, again, excesses of 6's and 7's.

Civilian Occupation and Attenuation

About all this table shows is the tendency of the occupations that are both sedentary and high in educational requirements to stress high attenuation, with some piling up in the lower grades in categories that are likely to consist almost exclusively of the more mature (consequently often fatter) individuals. Conversely, the physical occupations are likely to stress a low third component.

Marital Status and Attenuation

This table adds nothing to what has been discovered by relating Marital Status to total body build.

Religious Affiliation and Attenuation

(cf. the section on body build classes relative to Religious Affiliation.)

General Conclusions on Attenuation (Height/Cube Root of Weight)

The height/cube root of weight index is, of course, an expression of the variations of the two variables, height and weight. Stature decreases slightly after maturity and it is a well known fact that at the present time succeeding younger generations show marked statural increases. Other things being equal, we expect the tallest men in the younger age groups as a result of this, as yet unexplained, increase in stature in the United States. Now with this increase in stature there is no proportional increase in weight, although weight has also increased. Therefore, the younger men are not only taller, but proportionately lighter, or more slender. Again, many physical types, if not most, tend to take on increments of weight after maturity so that the height-weight relationships are changed by age in the direction of reduction of the index here considered.

Hence many, if not most, of the differences shown in the correlation of the isolated third component with various sociological features are due to age change, and the change of physical types in succeeding generations, which is not an age change, but a cyclic or evolutionary phenomenon.

About the only important fact that seems to emerge from this separate treatment of height-weight relationships is that the military specialties most stringently selected for combat service - combat infantry and gunnery - seem to have very significant excesses of the middle ranges - 3's and 4's - of the height-weight index and are deficient in the extremes. In other words, they are relatively poor in the attenuated, spidery, string-bean builds and also in the sawed-off, short-legged, squat types. Wherever selection is less strenuous on the physical side, more of these extremes are to be found. In tasks calling for physical strength but not necessarily agility, the 1's and 2's are to the fore; in the pursuits that call for qualities other than muscular, the 5's, 6's, and 7's.

TABLE 84
DISTRIBUTION TABLE FOR ATTENUATION - AGE

Total Series No.	1	2	3	4	5	6	7
17-19 Years 4857	.99	4.67	23.53	41.36	24.89	5.17	.49
20 Years 9292	.99	5.62	22.97	41.70	24.45	4.62	.52
21-25 Years 7450	1.40	7.99	28.59	40.05	20.44	3.57	.34
26-30 Years 7089	2.40	12.63	31.99	36.65	14.85	2.51	.14
31-62 Years 2958	3.14	14.98	33.00	34.04	13.79	2.03	.30
TOTALS 31646	1.60	8.48	27.34	39.41	20.11	3.74	.37

TABLE 85
DISTRIBUTION TABLE FOR ATTENUATION - MONTHS OF SERVICE

Total Series No.	1	2	3	4	5	6	7
1-12 Months 2005	2.19	6.08	25.86	38.60	22.09	5.54	.45
13-24 Months 25052	1.46	8.49	27.67	39.57	20.04	3.42	.34
25-36 Months 2315	1.77	7.95	25.18	39.57	21.21	5.18	.56
37-60 Months 1914	2.35	10.71	27.59	37.98	18.23	4.08	.37
61-174 Months 349	3.44	12.32	26.07	36.96	17.19	4.58	.29
TOTALS 31635	1.61	8.48	27.36	39.39	20.12	3.74	.37

TABLE 86
DISTRIBUTION TABLE FOR ATTENUATION - BIRTHPLACE, SUBJECT

Total Series No.	1	2	3	4	5	6	7
Foreign Born 608	2.14	10.53	31.58	38.32	16.28	3.13	.33
U.S.-New England 1657	1.75	10.68	29.57	37.18	18.59	3.26	.36
U.S.-Middle Atlantic 6824	2.32	10.95	29.54	37.37	17.13	3.56	.29
U.S.-E.N. Central 6588	1.93	8.21	27.84	39.83	19.54	3.22	.43
U.S.-W.N. Central 4336	1.25	8.58	29.98	39.88	18.15	2.63	.46
U.S.-So. Atlantic 5397	1.20	6.50	23.64	39.91	24.22	5.15	.20
U.S.-E.S. Cent. 2713	1.07	5.97	20.72	41.69	26.28	4.90	.37
U.S.-W.S. Cent. 825	1.09	7.39	23.88	39.88	23.27	4.73	.85
U.S.-Mountain 1205	1.08	7.39	30.54	42.57	16.43	2.57	.33
U.S.-Pac. States 1497	.73	7.95	27.86	39.68	20.37	4.07	.53
TOTALS 31650	1.61	8.48	27.34	39.41	20.11	3.74	.37

TABLE 87
DISTRIBUTION TABLE FOR ATTENUATION-NATIONAL EXTRACTION

	Total Series No.	1	2	3	4	5	6	7
Near East, Mediterranean, Southern Slavic	2213	4.25	15.18	34.88	34.21	11.97	1.22	.14
Old American	17802	1.22	7.32	25.44	39.82	22.34	4.42	.40
British	2599	1.27	8.35	26.39	39.71	20.58	4.31	.58
Irish	1673	1.61	6.87	28.39	40.17	20.44	2.87	.30
Scandinavian	1266	1.03	7.50	26.46	40.76	21.64	3.08	.32
Germanic	2947	1.66	9.50	29.79	40.55	15.98	3.05	.41
Balto-Ugric- Slav, Russians and Soviets	2169	2.72	11.62	31.95	38.17	14.57	2.07	.18
TOTALS	30988	1.60	8.46	27.31	39.44	20.10	3.76	.37

TABLE 88
DISTRIBUTION TABLE FOR ATTENUATION-RANK

	Total Series No.	1	2	3	4	5	6	7
Private	11466	1.45	7.61	27.24	40.36	20.51	3.69	.20
Non-Com	18777	1.65	8.78	27.46	38.90	20.04	3.69	.47
Officer	1379	2.32	11.75	26.83	37.85	17.77	4.93	.29
TOTALS	31622	1.61	8.48	27.35	39.38	20.11	3.74	.37

TABLE 89
DISTRIBUTION TABLE FOR ATTENUATION-MILITARY UNIT

	Total Series No.	1	2	3	4	5	6	7
AAF-rated flight	685	1.17	6.57	21.02	40.15	25.11	6.42	.29
AAF-all others	3574	2.21	9.29	23.03	39.06	22.30	4.78	.53
AAF-Subtotal	4259	2.04	8.85	22.70	39.23	22.75	5.05	.49
AGF-combat infantry	10572	1.16	7.73	28.54	40.99	19.34	3.00	.26
AGF-all others	5795	1.85	9.21	27.74	38.53	20.47	3.74	.50
AGF-subtotal	16367	1.41	8.25	27.91	40.12	19.74	3.26	.35
ASF-subtotal	10869	1.73	8.74	28.37	38.28	19.63	3.93	.35
TOTALS	31495	1.60	8.50	27.36	39.36	20.11	3.73	.37

TABLE 90
DISTRIBUTION TABLE FOR ATTENUATION -MILITARY SPECIALTY
ENLISTED

	Total Series No.	1	2	3	4	5	6	7
Gunnery	6041	1.14	6.77	27.61	42.97	19.24	3.11	.12
Intelligence	1839	1.79	7.72	27.13	40.40	20.01	3.70	.16
Communications	1683	1.19	7.13	25.73	38.50	22.86	4.34	.89
Transportation	3998	1.80	9.00	28.44	39.89	18.88	2.93	.18
Supply	3495	2.69	11.90	29.01	37.46	16.62	3.32	.34
Maintenance	3907	1.51	9.80	28.31	37.32	19.71	3.97	.38
Medical	961	2.08	8.43	28.10	40.37	18.11	3.02	.62
Engineering	710	1.41	9.58	31.83	39.86	15.35	2.82	.42
Technical	566	1.06	7.77	27.21	36.93	23.32	4.59	.71
Administration	6638	1.33	6.84	25.04	38.42	24.06	4.67	.56
TOTALS	29838	1.58	8.30	27.38	39.48	20.22	3.69	.37

TABLE 91

DISTRIBUTION TABLE FOR ATTENUATION - MILITARY SPECIALTY, OFFICERS

	Total Series No.	1	2	3	4	5	6	7
Gunnery	270	2.22	8.52	20.37	40.00	22.22	6.67	.37
Medical	139	5.04	15.83	35.25	35.25	9.35	3.60	.00
Administration	497	2.21	13.48	30.38	33.60	15.90	5.43	.20
All Others	429	1.86	10.49	23.54	42.42	20.05	3.50	.47
TOTALS	1335	2.40	11.76	26.67	37.90	17.83	4.87	.30

TABLE 92

DISTRIBUTION TABLE FOR ATTENUATION - EDUCATION

	Total Series No.	1	2	3	4	5	6	7
Illiterate, & Read & Write	1553	2.00	8.76	25.82	41.27	19.77	3.28	.13
Grade	14392	1.82	9.03	28.59	39.46	18.75	3.13	.26
High, and Spec. Training	14608	1.26	7.63	25.98	39.52	21.80	4.31	.49
College, Post- Grad., Prof.	990	2.63	11.72	31.41	35.05	15.45	4.95	.51
TOTALS	31543	1.59	8.45	27.33	39.44	20.11	3.74	.37

TABLE 93
DISTRIBUTION TABLE FOR ATTENUATION-CIVILIAN OCCUPATION

	Total Series No.	1	2	3	4	5	6	7
Student	5445	.77	5.05	22.59	40.00	26.26	5.67	.64
Prof. & Semi-Prof.	1361	2.06	10.51	29.17	36.22	17.93	4.48	.73
Farmers & Farm Laborers	6496	1.22	7.70	29.76	41.47	18.10	2.34	.17
Laborers except Farm	1892	1.90	8.93	27.17	41.75	17.18	3.65	.32
Service & Protective								
Service Workers	503	2.39	14.31	34.19	31.01	17.30	1.99	.00
Operatives	4750	2.08	10.46	29.73	38.82	17.31	2.63	.34
Craftsmen, Foremen	5451	2.07	9.70	28.40	37.97	19.37	3.28	.20
Salesmen	824	.61	8.50	27.67	36.04	22.82	4.85	.36
Clerical Workers	1539	1.43	7.02	24.37	39.05	23.26	5.46	.58
Proprietors, Managers, Officials	518	3.67	13.51	27.61	34.94	17.76	2.90	.19
TOTALS	28779	1.53	8.45	27.63	39.28	20.08	3.63	.35

TABLE 94
DISTRIBUTION TABLE FOR ATTENUATION-MARITAL STATUS

	Total Series No.	1	2	3	4	5	6	7
Single	18039	1.24	6.44	24.91	40.78	22.72	4.48	.44
Married	13251	2.13	11.17	30.56	37.55	16.67	2.79	.26
Divorced or Separated,	362	1.66	11.88	31.49	38.12	16.02	1.38	.28
Widower								
TOTALS	31652	1.60	8.48	27.35	39.40	20.11	3.74	.37

TABLE 95
DISTRIBUTION TABLE FOR ATTENUATION-RELIGIOUS AFFILIATION

	Total Series No.	1	2	3	4	5	6	7
Protestant	21969	1.25	7.51	26.21	40.20	21.29	4.08	.40
Catholic	8305	2.28	10.66	29.68	37.83	17.50	3.02	.28
Jewish	799	3.25	13.02	32.29	36.67	14.02	2.00	.38
Other	461	3.04	7.38	30.15	36.44	20.82	3.47	.43
TOTALS	31534	1.60	8.47	27.34	39.43	20.10	3.74	.37

SUMMARY (Negro Series)

Difference in Body Build from Whites

The series of 3051 Negroes and Negroids consists of men who are characteristically thinner and more lightly muscled than Whites, except that shoulder musculature in Negroes tends to be heavier and trunk musculature somewhat sharper in definition. But Negroes are of more slender skeletal framework and their extremities are attenuated, and, in the case of the inferior extremity, the lower leg is extremely meager. Their total body types are then different from Whites with the same body build formulae. The modal body build in Negroes is Sub-medium fat, sub-medium musculature (27.86%), a class which ranks only third in Whites and is especially common in the leaner, more elongate sub-adults.

Age and Months of Service

The range of Negro age is more limited than that of the Whites. The Negro series has fewer of the older men. Months of service are, correspondingly, deficient in the longer terms.

Birthplace

Virtually the entire Negro series is native born and it originates predominantly in the South Atlantic (62.59%) and East South Central (18.49%) census districts. There are no important or dependable differences in the body builds of Negroes originating in various areas, possibly because most districts furnish such small samples that they cannot be analyzed.

Rank

The Negro series consists predominantly of privates (60.77%). The White series, curiously, is composed of a majority of non-coms, (59.38% as against only 38.84% among the Negroes). Negro officers in this series are too few for analysis (.39%). The Negro privates, like the Whites, have fewer of the fat types and the heavily muscled types than do the (presumably older) non-coms. Distinction of body type by rank among Negroes is not as marked as in Whites.

Military Unit

The Negroes have about the same proportion in the AAF as do the Whites, but they include virtually no flight personnel. Negroes in the AGF total only 15.94 per cent, as against 51.97 per cent in Whites. Most of the Negroes (63.92%) are in the ASF. A study of the body build distributions by these main Army units shows that there are no clear trends of difference. The selective processes that operate so stringently in the case of Whites seem almost totally in abeyance. There are a few hints of differences in body build according to military specialty and these, in general, follow the same patterns of difference that are found among the Whites. However, most body build differences in the Negroes, classified by military function, are irrational and patternless. It is possible that Negroes have been assigned, without much attention to individual capability or difference, to certain restricted units and specialties.

Education

The relation of body build to education in Negroes is substantially the same as in Whites. The best (most muscular) builds occur oftenest in the Grade School group, which is superior both to the illiterates and to the High School trained. As in Whites, High School educated Negroes are better built and muscled than College and Professional trained Negroes. In the Negroes the illiterates appear to surpass the High School trained, but this is not true of the Whites.

Occupation

Occupational selection of body types among Negroes is not as stringent as among Whites, but operates along the same lines. Students tend to be slender, under-muscled; professional men tend to be muscularly undeveloped and often fat; farmers are only moderate in musculature, but not as thin as among the Whites; Operatives in Negroes, as in Whites, are well muscled; but the Clerical class in Negroes is less differentiated than among Whites.

Lack of social mobility and restricted economic opportunity may serve in Negroes to interfere with selective processes relating body type to occupational activity, but this interference seems to be less evident in civilian life than in the Army.

Marital Status

More Negroes than Whites are celibates (63.47%, as against 56.99%). As in Whites, fat men, muscular men, and fat muscular body types among Negroes are disproportionately married, and the thinner, non-muscular types are in excess among the unmarried.

TABLE 96

TOTAL DISTRIBUTION OF WHITES AND NEGROES

	% Whites	% Negroes
Thin, non-musc., elongate	2.94	5.05
Thin, sub-med.musc., elongate	2.27	3.28
Thin, med. musculature	.69	.60
Sub-med., non-musc., med.&elongate	5.43	6.23
Sub-med., sub-med.musculature	14.70	27.86
Sub-med., med.musculature	6.86	12.42
Sub-med., muscular	2.38	1.80
Med.plump, non-muscular	3.05	1.87
Med.plump, sub-med.musculature	17.70	13.44
Balanced, short to medium	16.52	16.32
Balanced, tall	.81	.29
Med. fat, muscular	5.55	1.77
Fat, non-musc., & sub-med.musc.	6.56	3.61
Fat, med.musculature	7.79	3.41
Fat, muscular	1.79	.39
Very fat, non-musc., sub-med.musc.	1.78	.92
Very fat, med.musculature	2.65	.69
Very fat, very muscular	.49	.07

COMPARISON OF BODY TYPE DISTRIBUTIONS IN
NEGROES AND WHITES

Table 96 compares the total body type distributions of 31,658 Whites and 3,051 Negroes or Negroids. In the thin body build types the Negroes have a total of 8.93 per cent as against 5.90 per cent in Whites. There are also nearly twice the proportion of men of sub-medium fatty development (48.31%) in the Negroes as in the Whites (29.39%), although the Whites exceed the Negroes in the small Sub-medium, muscular class. On the other hand, in the body groups of medium fleshiness the Whites surpass the Negroids (43.63% to 33.69%). In the fat and very fat categories there are more than twice as many Whites as Negroes and Negroids (21.06% as against 9.09%). The modal body type class in Whites is Medium plump, sub-medium musculature with 17.70 per cent. In Negroes this class is 13.44 per cent. In Negroes the modal class is Sub-medium, sub-medium musculature, with 27.86 per cent. That class in Whites constitutes 14.70 per cent of the total series and ranks third. It is interesting to note that the Balanced, short to medium class in both races is approximately the same (16.52% in Whites, 16.32% in Negroes).

It is thus apparent that the Negroid sample consists of men who are characteristically much thinner and in general more lightly muscled than the Whites. However, this impression is subject to some important reservations and corrections. The Negro body builds are really quite different from those of the Whites even when they add up numerically to the same body type general assessments. The difference is due to the fact that the lower leg of the Negro or Negroid is characteristically so thin and attenuated that it sharply reduces the sum total of his body type rating (based on the mean of 4 areas) both in fleshiness and in muscularity. On the other hand, the shoulders of the Negro customarily show relatively greater muscular development than is found in Whites. The trapezii and deltoids are characteristically well developed, as are also the pectoral muscles, the abdominal muscles and those of the back. Thigh muscles are also generally good. Thus the Negro tends to compensate to some extent by superiority of the upper trunk musculature for the poor development of lower leg. However, apart from muscular development it is very obvious that the arms, and the thoracic and abdominal trunks in the Negroes are more slender and attenuated than in the majority of Whites. The bones appear to be more elongated and slender.

It should be noted that the Negro has roughly twice the frequency of the body build class Sub-medium, medium musculature (12.42% against 6.86%) and this is the only muscularly dominant body build class in which Negroes exceed Whites (except the very spare, Thin, sub-medium musculature, elongate). However, were it not for the miserable lower legs of Negroids, they might rate muscularly somewhat higher than Whites, although they would still have the same rather slender, and in the Sheldonian term ectomorphic, body builds.

TABLE 97
AGE

17 - 19 YEARS (18.62%)

<u>DEFICIENCIES</u>		<u>EXCESSES</u>	
	<u>%</u>		<u>%</u>
Very fat, med. musc.	18.62	Balanced, tall	14.71
Fat, muscular	18.62	Thin, non-musc.	8.65
Very fat, very musc.	18.62	Sub-med., sub-med. musc.	5.50
Fat, non-muscular	17.62	Sub-med., non-musc.	5.06
Fat, med. musc.	11.89		
Sub-med., muscular	11.35		
Med. fat, muscular	11.21		
Thin, med. musc.	7.51		
Sub-med., med. musc.	3.58		
Thin, sub-med. musc.	1.62		
Med. plump, sub-med. musc.	1.55		
Balanced, short to med.	1.35		
Med. plump, non-musc.	1.08		
Very fat, non-musc.	.76		

TABLE 98

AGE

20 YEARS (27.83%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	27.83	Med. plump, non-musc.	5.51
Thin, med. musc.	22.27	Balanced, tall	5.50
Fat, med. musc.	12.45	Sub-med., non-musc.	5.33
Fat, muscular	11.16	Sub-med., sub-med. musc.	3.93
Very fat, non-musc.	10.08	Med. fat, musc.	3.65
Very fat, med. musc.	8.78	Sub-med., med. musc.	1.19
Sub-med., muscular	7.83		
Fat, non-musc.	7.83		
Thin, sub-med. musc.	3.83		
Thin, non-musc.	2.51		
Balanced, short to med.	1.32		
Med. plump, sub-med. musc.	.76		

TABLE 99

AGE

21 - 25 YEARS (32.65%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	25.51	Very fat, very muscular	67.35
Balanced, tall	10.43	Fat, med. musc.	5.81
Sub-med., non-musc.	8.97	Very fat, med. musc.	5.45
Thin, med. musc.	4.87	Balanced, short to med.	2.89
Med. plump, non-musc.	2.83	Med. fat, muscular	2.54
Sub-med., sub-med. musc.	2.53	Thin, non-musc.	2.41
Sub-med., muscular	1.74	Thin, sub-med. musc.	2.35
Med. plump, sub-med. musc.	.94	Sub-med., med. musc.	1.12
Fat, non-musc.	.83	Fat, muscular	.68

TABLE 100

AGE

26 - 30 YEARS (13.70%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	13.70	Very fat, non-musc.	22.01
Balanced, tall	13.70	Fat, muscular	19.63
Sub-med., non-musc.	7.91	Very fat, med. musc.	14.67
Med. plump, non-musc.	4.93	Med. fat, muscular	10.37
Thin, non-musc.	4.61	Fat, med. musc.	9.38
Sub-med., sub-med. musc.	3.46	Thin, med. musc.	8.52
Balanced, short to med.	1.25	Fat, non-musc.	6.30
		Sub-med., med. musc.	4.51
		Thin, sub-med. musc.	3.30
		Med. plump, sub-med. musc.	1.42
		Sub-med., muscular	.85

TABLE 101

AGE

31 - 50 YEARS (7.19%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	7.19	Thin, med. musc.	26.14
Med. fat, musc.	5.34	Sub-med., muscular	20.08
Sub-med., non-musc.	4.08	Very fat, non-musc.	14.24
Thin, non-musc.	3.94	Fat, non-musc.	10.99
Sub-med., sub-med. musc.	3.43	Fat, muscular	9.48
Sub-med., med. musc.	3.23	Fat, med. musc.	9.16
Thin, sub-med. musc.	.19	Very fat, med. musc.	7.10
		Balanced, tall	3.92
		Med. plump, non-musc.	3.34
		Med. plump, sub-med. musc.	1.83
		Balanced, short to med.	1.04

Negroes

Age

In the youngest age group (17, 18, 19 years) there are 12.62 per cent of Negroes and 15.35 per cent of Whites. As in the Whites, certain sub-adult body build types (Thin, non-muscular; Sub-medium, non-muscular; Sub-medium, sub-medium) are markedly in excess. There is also an excess of the rare Balanced, tall type. All other types show deficiencies at this age.

Age 20 includes 27.83 per cent of Negroes and 29.36 per cent of Whites. In this age group the Negroes do not show the excesses of the muscularly weak, thin body types that are shown by the Whites, but are strong in the sub-medium fat body types, notably Sub-medium, non-muscular, but also the better developed sub-medium types. Medium plump, non-muscular, Balanced, tall, and Medium fat, muscular are also in excess. The last named is a physically superior type. All other types are deficient.

Age 21-25 includes 32.65 per cent of Negroes and only 23.54 per cent of Whites. In Negroes as in Whites this is the period when the heavier, more muscular types tend to reach their highest frequency. Balanced, short to medium, and Medium fat, muscular, are in excess, but the Negroes also show excesses of the fat and very fat types of medium or better musculature. Nevertheless, they still show, at this age, excesses of two of the thin types, which the Whites do not exhibit.

Only 13.70 per cent of the Negroes fall in the 26-30 year age group as against 22.41 per cent of Whites. Excesses of body types in this age group are not very different from those of Whites. Thin, medium musculature, Sub-medium, medium and Sub-medium, muscular, with Medium plump, sub-medium musculature, are in excess as are to greater extents all fat and very fat types irrespective of musculature except the excessively rare Very fat, very muscular. However, Negroes still show in this age group an excess of Thin, sub-medium, elongate, which is absent from Whites.

The highest Negroid age group is 31-50 years and includes 7.19 per cent. In the Whites this group ranges from 31 to 62 years and includes 9.36 per cent. This group, as in Whites, has excesses of all fat and very fat types also excesses of the thinner types (Thin, medium musculature; Sub-medium, muscular) that are strong in muscularity. There are small excesses of all medium fat types except Medium fat, muscular.

On the whole, the Negroes are younger than the Whites and show quite similar shifts in body build frequencies in the increasing age groups. However, they emphasize throughout their more slender and elongate tendency which is based upon racial differences in large part.

TABLE 102

MONTHS OF SERVICE

1 - 12 MONTHS (6.07%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med.musc.	6.07	Very fat, non-musc.	8.22
Balanced, tall	6.07	Thin, sub-med.musc.	2.93
Fat, muscular	6.07	Sub-med., sub-med.musc.	2.64
Very fat, med.musc.	6.07	Med.fat, muscular	1.34
Very fat, very musc.	6.07		
Fat, med. musc.	3.19		
Med.plump, non-musc.	2.56		
Sub-med., musc.	2.43		
Fat, non-musc.	2.43		
Balanced, short to med.	1.85		
Med.plump, sub-med.musc.	.95		
Thin, non-musc.	.88		
Sub-med., non-musc.	.81		

Sub-med., med.musculature - no deficiency nor excess

TABLE 103

MONTHS OF SERVICE

13- 24 MONTHS (71.97%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	21.97	Balanced, tall	16.92
Very fat, very musc.	21.97	Very fat, med.musc.	8.98
Sub-med., musc.	21.06	Fat, non-musc.	6.21
Thin, med.musc.	16.41	Balanced, short to med.	5.34
Fat, med.musc.	9.47	Med.plump, sub-med.	3.88
Very fat, non-musc.	6.63	Med.plump, non-musc.	3.47
Sub-med., non-musc.	6.18	Thin, non-musc.	.11
Sub-med., med.	4.16		
Thin, sub-med.musc.	3.97		
Med. fat, musc.	3.45		
Sub-med., sub-med.musc.	.21		

TABLE 104

MONTHS OF SERVICE

25 - 36 MONTHS (13.02%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	1.02	Fat, musc.	20.31
Very fat, non-musc.	5.88	Fat, med. musc.	10.06
Balanced, short to med.	4.79	Thin, med. musc.	9.20
Very fat, med. musc.	3.50	Sub-med., musc.	5.16
Balanced, tall	1.91	Med. plump, non-musc.	2.77
Med. plump, sub-med. musc.	1.80	Sub-med., non-musc.	2.24
Fat, non-musc.	1.20	Med. fat, musc.	1.79
Sub-med., sub-med. musc.	.90	Thin, sub-med. musc.	.98
		Thin, non-musc.	.62
		Sub-med., med. musc.	.44

TABLE 105

MONTHS OF SERVICE

37 - 60 MONTHS (7.59%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, med. musc.	7.59	Very fat, very musc.	42.41
Balanced, tall	7.59	Thin, med. musc.	14.63
Fat, non-musc.	3.04	Sub-med., musc.	14.23
Med. plump, non-musc.	2.32	Fat, muscular	9.08
Sub-med., sub-med. musc.	1.71	Sub-med., med. musc.	4.21
Thin, sub-med. musc.	1.59	Very fat, non-musc.	3.12
Fat, med. musc.	.86	Med. fat, musc.	1.67
Med. plump, sub-med. musc.	.76	Thin, non-musc.	1.50
Balanced, short to med.	.56	Sub-med., non-musc.	.30

TABLE 106

MONTHS OF SERVICE

61 - 84 MONTHS (1.35%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, non-musc.	1.35	Very fat, med. musc.	8.17
Thin, med. musc.	1.35	Sub-med., muscular	4.10
Med. plump, non-musc.	1.35	Fat, med. musc.	3.46
Balanced, tall	1.35	Very fat, non-musc.	2.22
Med. fat, muscular	1.35	Thin, sub-med. musc.	1.65
Fat, muscular	1.35	Fat, non-muscular	.47
Very fat, very musc.	1.35	Sub-med., med. musc.	.23
Balanced, short to med.	1.15	Sub-med., sub-med. musc.	.18
Sub-med., non-musc.	.82		
Med. plump, sub-med. musc.	.37		

NegroesMonths of Service

There are only 185 Negroes of our series in the shortest service term (1-12 months), but the percentage, 6.07, is virtually the same as in the case of the Whites (6.34%). The Negroes, like the Whites, show excesses of Thin, sub-medium musculature, elongate, and of Sub-medium, medium musculature, in this shortest service term, but they also show excesses of Medium fat, muscular, and Very fat, non-muscular, neither of which occur in Whites of this service group. Five of the rarer classes of body build do not occur at all in the small sample of short term Negroes, which is too small to be reliable.

71.97 per cent of the Negroes are in the 13/24 months service group as against 79.19 per cent of Whites. The notable excesses in the Negroes of this term are all classes of medium fatty development (grade 4) except Medium fat, muscular, Fat, non-muscular and sub-medium, and Very fat, medium musculature. Whites show similar excesses in the medium fat classes, but not in the last two mentioned.

13.02 per cent of Negroes and 7.31 per cent of Whites are in the 25-36 months service group. The largest Negro excesses in this term are of the more muscular types (muscularity medium or better) whether associated with thinness, sub-medium fatty development or "fat" (grade 5). But very fat types and balanced types are deficient in the Negroes of this term.

The 37-60 months categories include 7.59 per cent of Negroes and 6.06 per cent of Whites. This group among the Negroes is overloaded with Very fat, very muscular, Thin, medium musculature, Sub-medium, muscular, Fat, muscular, Sub-medium, medium musculature, and Very fat, very muscular. Practically the same excesses occur in the Whites, but the latter tend to be high in all fat and very fat types.

The longest service group in Negroes is 61-84 months and includes 1.35 per cent. In Whites it is 61-174 months and includes 1.10 per cent. The numbers in the Negro group are too small for dependability (all individuals). However, both groups show large excesses of sub-medium fat men of good or superior musculature and some excesses in fat and very fat types.

Conclusions

Both Negroes and Whites in the groups of longer and longer service tend to show more thin and sub-medium fat men of good muscularity and more medium men of good muscularity, as well as more fat men of whatever muscular development. The thin and sub-medium fat types that are undermuscle tend to diminish in both groups. However, the Negroes seem to maintain their racial difference in their greater proportions of the more slender and elongate types.

Negroes of this series are, on the whole, longer service soldiers than the Whites except in the longest term of service.

TABLE 107

BIRTHPLACE, SUBJECT

SOUTH ATLANTIC (62.59%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Balanced, tall	7.03	Very fat, very musc.	37.41
Very fat, med. musc.	5.45	Thin, med. musc.	9.63
Balanced, short to med.	5.16	Very fat, non-musc.	8.84
Sub-med. non-musc.	4.17	Fat, non-musc.	7.41
Med. plump, sub-med. musc.	3.32	Thin, sub-med. musc.	6.41
Thin, non-muscular	.90	Fat, muscular	4.08
Sub-med., muscular	.77	Sub-med., sub-med. musc.	2.55
		Med. fat, muscular	2.22
		Sub-med., med. musc.	1.79
		Fat, med. musc.	.87
		Med. plump, non-musc.	.57

TABLE 108

BIRTHPLACE, SUBJECT

EAST SOUTH CENTRAL (18.49%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Fat, muscular	18.49	Med. plump, non-musc.	7.83
Very fat, very musc.	18.49	Balanced, tall	3.73
Very fat, non-musc.	11.35	Sub-med., non-musc.	2.03
Thin, sub-med. musc.	4.49	Balanced, short to med.	1.79
Very fat, med. musc.	4.20	Sub-med., muscular	1.51
Fat, med. musc.	3.11	Med. plump, sub-med. musc.	1.27
Fat, non-musc.	2.13	Thin, non-musc.	.99
Med. fat, muscular	1.82		
Thin, med. musc.	1.82		
Sub-med, med. musc.	1.60		
Sub-med., sub-med. musc.	.12		

TABLE 109

BIRTHPLACE, SUBJECT

MIDDLE ATLANTIC (8.43%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	8.43	Fat, muscular	8.24
Med. plump, non-musc.	6.68	Very fat, non-musc.	5.86
Fat, non-musc.	5.70	Very fat, med. musc.	5.86
Thin, sub-med. musc.	3.43	Sub-med., muscular	4.30
Thin, med. musc.	2.87	Balanced, short to med.	3.22
Sub-med., non-musc.	1.59	Balanced, tall	2.68
Sub-med., sub-med. musc.	1.36	Sub-med., med. musc.	1.86
Med. fat, muscular	1.02	Med. plump, sub-med. musc.	.35
Fat, med. musc.	.74		
Thin, non-musc.	.64		

TABLE 110

RANKING NEGRO TYPES BY BIRTHPLACE, SUBJECT

	South Atl.	E. S. Cen.	Middle Atl.	E. N. Cen.	Total Series
Sub-med., sub-med. musc.	28.97	27.66	23.35	24.77	27.84
Balanced, short to med.	14.98	17.91	22.57	15.60	16.33
Med. plump, sub-med. musc.	12.73	14.36	14.01	14.68	13.44
Sub-med., med. musc.	12.78	11.35	15.18	15.60	12.43
Sub-med., non-musc.	5.81	6.91	5.06	5.50	6.23
Thin, non-musc.	4.98	5.32	4.67	4.59	5.05
Fat, non-musc.	4.03	3.19	1.17	3.67	3.61
Fat, med. musc.	3.46	2.84	3.11	2.75	3.41
Thin, sub-med. musc.	3.61	2.48	1.95	5.50	3.28
Med. plump, non-musc.	1.89	2.66	.39	2.75	1.87
Sub-med., musc.	1.78	1.95	2.72	1.83	1.80
Med. fat, muscular	1.83	1.60	1.56	00	1.77
Very fat, non-musc.	1.05	.35	1.56	1.83	.92
Very fat, med. musc.	.63	.53	1.17	00	.69
Thin, med. musc.	.68	.53	.39	00	.59
Fat, muscular	.42	00	.78	00	.39
Balanced, tall	.26	.35	.39	.92	.30
Very fat, very musc.	.10	00	00	00	.07

Negroes

Birthplace

The principal birthplace of the subjects of the Negro series is the South Atlantic district, with 62.59 per cent. Next comes East South Central with 18.49 per cent; then Middle Atlantic, 8.43 per cent; West South Central, 4.36 per cent; East North Central, 3.57 per cent.

The regional differences do not add up to anything substantial because the South Atlantic district overbalances the other areas of birth.

Actually the order of frequency of the body build classes seems about the same in the different census districts.

TABLE 111

RANK

PRIVATE (60.77%)

<u>DEFICIENCIES</u>	<u>1</u>	<u>EXCESSES</u>	<u>2</u>
Very fat, very musc.	60.77	Thin, med.musc.	11.45
Very fat, med.musc.	13.15	Sub-med.,musc.	10.14
Fat, med.musc.	6.92	Balanced, tall	5.90
Med.fat,musc.	5.21	Med.plump,non-musc.	4.14
Fat, non-musc.	3.50	Thin, non-musc.	2.22
Fat, musc.	2.44	Sub-med.,sub-med.musc.	.99
Thin,sub-med.musc.	1.77	Med.plump,sub-med.musc.	.94
Sub-med.,med.musc.	.88		
Sub-med.,non-musc.	.77		
Balanced,short to med.	.33		
Very fat,non-musc.	.06		

TABLE 112

RANK

NON-COM (38.84%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med. musc.	11.06	Very fat, very musc.	61.16
Sub-med., musc.	9.75	Very fat, med. musc.	13.54
Very fat, non-musc.	6.70	Sub-med., med. musc.	11.00
Balanced, tall	5.51	Med. fat, muscular	5.60
Thin, non-musc.	3.78	Fat, med. musc.	5.39
Med. plump, non-musc.	3.75	Fat, non-musc.	3.89
Sub-med., sub-med. musc.	.84	Fat, musc.	2.83
Med. plump, sub-med. musc.	.79	Thin, sub-med. musc.	2.16
		Balanced, short to med.	.72
		Sub-med., non-musc.	.63

TABLE 113
DISTRIBUTION OF NEGRO TYPES BY RANK

	<u>Private</u>	<u>Non-Com</u>	<u>Officer</u>	<u>Total Series</u>
Sub-med., sub-med. musc.	28.32	27.26	16.67	27.86
Balanced, short to med.	16.24	16.62	00	16.32
Med. plump, sub-med. musc.	13.65	13.16	8.33	13.44
Sub-med., med. musc.	12.24	12.74	8.33	12.42
Sub-med., non-musc.	6.15	6.33	8.33	6.23
Thin, non-musc. elongate	5.23	4.56	25.00	5.05
Fat, non-musc.	3.40	3.97	00	3.61
Fat, med. musc.	3.02	3.88	16.67	3.41
Thin, sub-med. musc.	3.18	3.46	00	3.28
Med. plump, non-musc.	2.00	1.69	00	1.87
Sub-med., musc.	2.10	1.35	00	1.80
Med. fat, muscular	1.62	2.03	00	1.77
Very fat, non-musc.	.92	.76	16.67	.92
Very fat, med. musc.	.54	.93	00	.69
Thin, med. musc.	.70	.42	00	.60
Fat, musc.	.38	.42	00	.39
Balanced, tall	.32	.25	00	.29
Very fat, very musc.	00	.17	00	.07

Negroes

Rank

The Negro series consists of 60.77 per cent of privates, 38.84 per cent of non-coms, and .39 per cent of officers. The corresponding figures for Whites are 36.26 per cent of privates, 59.38 per cent non-coms, 4.36 per cent of officers. There is, in fact, very little difference in the distributions of body types between Negro privates and Negro non-coms. The non-coms are higher in the various fat and very fat types (perhaps because they tend to be somewhat older). The privates show a small excess of the weak, Thin, non-muscular, elongate class, whereas the non-coms are slightly deficient in this group. Privates also have a substantial excess of thin men of medium musculature and of sub-medium fat men who are muscular, whereas in this area of body types the non-coms show an excess of sub-medium fat of medium musculature. Medium fat, muscular, Fat, medium musculature, and Fat, muscular, are a little higher in non-coms. On the whole, the privates are slightly less fat and a little less muscular. The Negro non-com series differs from the private series less than in the corresponding White series. The Negro officers (12 in all) are too few for discussion.

TABLE 114

MILITARY UNIT

AAP ALL BUT FLIGHT (15.02%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	15.02	Very fat, non-musc.	13.55
Med. plump, non-musc.	6.25	Fat, med. musc.	3.25
Thin, med. musc.	3.91	Sub-med., med. musc.	3.16
Balanced, tall	3.91	Thin, non-muscular	1.97
Fat, non-musc.	3.20	Fat, muscular	1.65
Sub-med., musc.	2.29	Sub-med., non-musc.	.41
Med. fat, musc.	2.06		
Sub-med., sub-med. musc.	.95		
Thin, sub-med. musc.	.88		
Very fat, med. musc.	.73		
Med. plump, sub-med. musc.	.59		
Balanced, short to med.	.16		

TABLE 115

MILITARY UNIT

AAF SUBTOTAL (15.15%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	15.15	Very fat, med. musc.	22.95
Med. plump, non-musc.	6.38	Fat, med. musc.	3.12
Very fat, non-musc.	4.44	Sub-med., med. musc.	3.03
Thin, med. musc.	4.04	Thin, non-muscular	2.50
Balanced, tall	4.04	Fat, muscular	1.52
Fat, non-musc.	3.33	Sub-med., non-musc.	.81
Sub-med., muscular	2.42		
Med. fat, muscular	2.19		
Thin, sub-med., musc.	1.01		
Sub-med., sub-med. musc.	.85		
Med. plump, sub-med. musc.	.72		
Balanced, short to med.	.29		

Of the Negroes only 4 out of 460 assigned to the AAF were rated as Flight. All the rest are Ground, Maintenance, and Other. There seems to be comparatively little evidence of meaningful body type selection for the AAF as contrasted with total series.

TABLE 116

MILITARY UNIT

AGF SUBTOTAL (15.94%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	7.61	Very fat, very musc.	34.06
Med. plump, non-musc.	7.17	Thin, sub-med. musc.	8.30
Sub-med., non-musc.	4.24	Fat, med. musc.	8.10
Balanced, short to med.	1.88	Balanced, tall	6.28
Very fat, med. musc.	1.65	Med. fat, muscular	4.43
Fat, non-muscular	1.39	Very fat, non-musc.	1.92
Thin, non-muscular	.27	Thin, med. musc.	.73
		Sub-med., musc.	.42
		Sub-med., sub-med. musc.	.37
		Med. plump, sub-med. musc.	.20
		Sub-med., med. musc.	.16

TABLE 117

MILITARY UNIT

ASF SUBTOTAL (68.92%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	18.92	Med.plump,non-musc.	13.54
Very fat, non-musc.	15.35	Fat, muscular	6.08
Fat, med. musc.	11.23	Fat, non-muscular	4.72
Thin, sub-med.musc.	7.30	Sub-med., non-musc.	3.42
Sub-med., med. musc.	2.88	Thin, med. musc.	3.30
Thin, non-muscular	2.25	Very fat, med.musc.	2.51
Med. fat, muscular	2.25	Balanced, short to med.	2.16
Balanced, tall	2.25	Sub-med., musc.	1.99
		Med.plump,sub-med.musc.	.52
		Sub-med.,sub-med.musc.	.47

TABLE 118

MILITARY UNIT

ACF COMBAT INFANTRY (7.41%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very muscular	7.41	Balanced, tall	14.81
Med.plump,non-musc.	3.90	Fat,med.musc.	5.09
Fat, non-muscular	3.77	Thin,sub-med.musc.	2.69
Thin, med.musc.	1.85	Very fat, med.musc.	2.11
Thin, non-musc.	1.53	Fat, muscular	.92
Balanced, short to medium	1.39	Sub-med.,med.musc.	.88
Med. plump,sub-med.musc.	.32	Sub-med.,non-muscular	.57
Very fat, non-muscular	.27	Sub-med.,sub-med.musc.	.39
Sub-med.,muscular	.14		

Medium fat, muscular - no excess or deficiency

Only 7.41 per cent of Negroes are found in Combat Infantry, as against 33.57 per cent of Whites, yet there is a slight muscular superiority of the Negro group. The table of excesses and deficiencies listed for this unit hardly suggests that either purposeful or "natural" selectional processes have operated stringently to bring about the distribution of body types in this unit.

TABLE 119

MILITARY UNIT

AGF COMBAT ARTILLERY - OTHER (8.54%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	8.54	Very fat, very musc.	41.46
Balanced, tall	8.54	Thin, sub-med. musc.	5.60
Sub-med., non-musc.	4.82	Med. fat, muscular	4.42
Very fat, med. musc.	3.78	Fat, med. musc.	3.00
Med. plump, non-musc.	3.28	Thin, med. musc.	2.57
Sub-med., med. musc.	1.05	Fat, non-musc.	2.37
Balanced, short to med.	.51	Very fat, non-musc.	2.17
Sub-med., sub-med. musc.	.03	Thin, non-musc.	1.26
		Sub-med., musc.	.55
		Med. plump, sub-med. musc.	.51

In Combat Artillery are 8.54% of Negroes. Here, differences in body build distribution from the total Negro series appear to be of a chance nature and constitute no discernible trend.

NegroesAAF, AGF, and ASF

While the proportions of the Negro series in the AAF (15.15%) are not substantially different from those of the Whites (13.52%), the Negroes have only 15.94 per cent in AGF as against 51.97 per cent of Whites. Thus the Negro proportion in ASF is 68.92%, as against only 34.51 per cent of Whites.

As previously mentioned, the Negro AAF shows no clear pattern of selection of body build types. Excesses and deficiencies seem to be random. When the AGF small sample is compared with the bulk of the ASF, there again emerges no clear trend of difference. The only conclusion that can be reached is that the selection that operates so potently in differentiating White units has not affected the Negro troops in these main divisions.

TABLE 120

MILITARY SPECIALTY - ENLISTED

GUNNERY AND GUNNERY CONTROL (5.88%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med.musc.	5.88	Very fat, very musc.	44.12
Med.plump,non-musc.	4.09	Balanced, tall	16.34
Fat,non-muscular	4.06	Fat, muscular	4.12
Very fat,non-musc.	2.03	Very fat,med.musc.	3.64
Sub-med.,muscular	2.03	Thin, sub-med.musc.	3.12
Med.plump,sub-med.musc.	1.65	Fat,med.musc.	1.96
Sub-med.,non-muscular	1.60	Sub-med.,med.musc.	1.05
Med. fat, muscular	.22	Thin,non-musc.	.83
		Balanced,short to med.	.57
		Sub-med.,sub-med.musc.	.30

This group of Negroes is 5.88 per cent of the total and comprises only 177 individuals. It shows some slight evidence of selectional distribution of body types toward the better muscled classes. The excesses and deficiencies do suggest that fat and very fat men of the lower muscular ratings are deficient along with some other presumably physically inferior types. However, the evidence is contradictory in the case of several of the muscularly superior types, so that it can hardly be concluded that there is more than a hint of explicable differentiation in body build for military function that is so obvious in whites.

TABLE 121

MILITARY SPECIALTY - ENLISTED

TRANSPORTATION (30.51%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	30.51	Med. fat,musc.	14.77
Thin,sub-med.musc.	13.51	Very fat,med.musc.	12.35
Very fat,non-musc.	11.28	Sub-med.,muscular	7.95
Fat,muscular	10.51	Balanced, tall	2.82
Fat, med.musc.	8.94	Sub-med.,sub-med.musc.	2.43
Thin,med.musc.	8.29	Fat,non-muscular	2.22
Sub-med.,non-musc.	2.17	Balanced,short to med.	1.75
Med.plump,non-musc.	1.94		
Sub-med.,med. musc.	1.71		
Med.plump,sub-med.musc.	1.41		
Thin, non-muscular	.31		

This military specialty among the Negroes is large - a total of 918 men or 30.51 per cent of the series. It is deficient in

thin men, in Sub-medium, non-muscular, and in Very fat, non-muscular; but it is inconsistently strong in Fat, non-muscular and sub-medium, and deficient also in several of the muscularly superior classes. On the whole, then, it shows better than average muscularity for the series and something of a dearth of very thin men.

TABLE 122

MILITARY SPECIALTY - ENLISTED

SUPPLY (11.67%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	11.67	Fat, non-muscular	11.97
Balanced, tall	11.67	Thin, med. musc.	10.55
Thin, non-muscular	2.95	Sub-med., muscular	3.71
Med. fat, muscular	2.24	Thin, sub-med. musc.	3.33
Sub-med., sub-med. musc.	2.04	Med. plump, non-musc.	2.62
Fat, muscular	1.67	Very fat, med. musc.	2.62
Sub-med., med. musc.	1.00	Fat, med. musc.	2.06
Med. plump, sub-med. musc.	.48	Balanced, short to med.	.83
Very fat, non-muscular	.13	Sub-med., non-musc.	.63

The Negro Supply group of 351 individuals is almost exactly the same proportion as the White Supply group (Negroes 11.67%, Whites 11.71%). The deficiencies and excesses of types in this group seem random.

TABLE 123

MILITARY SPECIALTY - ENLISTED

MAINTENANCE (13.53%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	13.53	Balanced, tall	8.69
Very fat, med. musc.	8.77	Fat, muscular	6.47
Sub-med., muscular	5.84	Thin, sub-med. musc.	6.47
Fat, non-muscular	5.35	Thin, med. musc.	3.14
Very fat, non-musc.	1.99	Fat, med. musc.	3.14
Med. plump, sub-med. musc.	1.59	Sub-med., med. musc.	3.00
Sub-med., sub-med. musc.	1.04	Med. fat, muscular	1.56
Sub-med., non-musc.	.16	Thin, non-musc.	1.24
		Med. plump, non-musc.	.76
		Balanced, short to med.	.18

This group is 13.53 per cent as against 13.09 per cent in Whites. It includes 407 men. It seems to be somewhat overloaded with thin men and is deficient in Fat, non-muscular and sub-medium, and in all Very fat types. It is apparently leaner than total series and somewhat superior in muscularity.

TABLE 124

MILITARY SPECIALTY -- ENLISTED

ADMINISTRATION (30.18%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, med.musc.	20.66	Very fat, non-musc.	23.67
Balanced, tall	19.07	Very fat, very musc.	19.82
Med. fat, muscular	11.31	Med. plump, sub-med.musc.	5.39
Sub-med., muscular	7.10	Med. plump, non-musc.	3.75
Thin, med.musc.	4.07	Thin, non-muscular	3.38
Fat, non-muscular	3.82	Sub-med., non-muscular	.84
Balanced, short to med.	3.37	Sub-med., sub-med.musc.	.74
Sub-med., med.musc.	1.65	Fat, med.musc.	.21
Fat, muscular	.18		
Thin, sub-med.musc.	.18		

This specialty includes 908 Negroes, or 30.18 per cent, as against 22.25% of the White series. The Table of excesses and deficiencies shows that, as in the case of Whites, Administration tends to be somewhat overweighted with types of inferior muscularity of whatever grade of fatty development. But the situation is not as clearly out as in Whites.

Summary and Conclusions on Evidence of Body Type Selection among Negroes for Military Units and Military Specialties

Our Negro sample is somewhat small (3052 individuals) and cannot be divided into all of the numerous specialties without yielding many samples of such specialties that are too small for analysis. Again the Negro troops seem to have been assigned disproportionately to certain military units and types of specialty, and apparently to these units and specialties indiscriminately.

In the AAF unit, only 4 of 440 Negroes were assigned to flight duty and in this entire unit there is no evidence of any body type selection. Again, far more Negroes proportionately have been assigned to ASF than to AGF than is the case with Whites. Body type differences between these main units in Negroes shows no clear-cut trends of difference and are, apparently, random.

Within the AGF the almost negligibly few Negroes assigned to the Combat Infantry (7.41 per cent) are possibly a little better in muscular development than total Negro series, but they are not outstanding as are the White infantry-men. Another small sub-unit, Combat Artillery, is without meaningful distinction in

its body type variations. Gunnery and Transportation specialties are indeed somewhat superior in muscularity to total series, while the maintenance group tends to be rather thin and above par in muscular development. The Supply group, strongly distinctive in Whites, is not so in Negroes, and the Administration group tends to show, as in Whites, something of an accumulation of the softer, fatter, and muscularly less developed types.

Our impression is that Negro personnel has been subjected neither to the care in making individual military assignments nor the unconscious but apparently rigorous natural selection of body build types that is so remarkable a feature of the Whites. There are faint suggestions that some of the latter type selectional processes have been at work, but in no way so stringently as in the case of Whites. There is a similar assortment of body build types among the Negroes from which selections could be made, although heavy muscular types and fat types are indeed less frequent than in Whites.

TABLE 125

CIVILIAN OCCUPATION

STUDENT (12.53%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, med.musc.	12.53	Very fat, very musc.	37.47
Fat, muscular	12.53	Balanced, tall	9.69
Fat, med.musc.	6.01	Sub-med., non-musc.	4.04
Sub-med., musc.	4.69	Med. plump, non-musc.	2.56
Med. fat, muscular	4.37	Sub-med., med.musc.	2.00
Fat, non-muscular	4.37	Thin, med.musc.	.80
Thin, sub-med.musc.	1.66	Sub-med., sub-med.musc.	.48
Very fat, non-musc.	1.42	Med. plump, sub-med.musc.	.34
Balanced, short to med.	.53	Thin, non-musc.	.06

TABLE 126

CIVILIAN OCCUPATION

PROFESSIONAL & SEMI-PROFESSIONAL (1.51%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, med.musc.	1.51	Very fat, non-musc.	9.60
Fat, non-musc.	1.51	Fat, musc.	7.58
Balanced, tall	1.51	Very fat, med.musc.	4.37
Very fat, very musc.	1.51	Thin, non-musc.	.71
Balanced, short to med.	.62	Thin, sub-med.musc.	.66
Med. plump, sub-med.musc.	.44	Med. fat, muscular	.53
Fat, med.musc.	.42	Sub-med., muscular	.45
Sub-med., non-musc.	.37	Med. plump, non-musc.	.36
Sub-med., sub-med.musc.	.12	Sub-med., med.musc.	.23

TABLE 127

CIVILIAN OCCUPATION

FARMERS AND FARM LABORERS (22.37%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	22.37	Balanced, tall	22.07
Sub-med., non-musc.	17.23	Fat, non-musc.	10.28
Very fat, med. musc.	16.49	Med. plump, non-musc.	5.93
Thin, med. musc.	15.70	Med. plump, sub-med. musc.	5.24
Fat, muscular	13.28	Sub-med., sub-med. musc.	1.11
Very fat, non-musc.	11.26		
Sub-med., muscular	10.61		
Thin, sub-med. musc.	8.24		
Med. fat, muscular	6.04		
Sub-med., med. musc.	4.35		
Fat, med. musc.	1.72		
Balanced, short to med.	1.04		
Thin, non-muscular	.89		

TABLE 128

CIVILIAN OCCUPATION

LABORERS EXCEPT FARM (16.41%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Med. fat, musc.	8.25	Very fat, very musc.	33.59
Sub-med., non-musc.	2.70	Very fat, non-musc.	13.22
Med. plump, non-musc.	1.32	Thin, med. musc.	10.26
Balanced, short to med.	1.30	Balanced, tall	5.81
Med. plump, sub-med. musc.	1.13	Sub-med., musc.	5.16
Fat, non-musc.	1.08	Thin, sub-med. musc.	4.24
Sub-med., sub-med. musc.	.50	Fat, med. musc.	3.16
		Fat, muscular	2.68
		Sub-med., med. musc.	2.19
		Very fat, med. musc.	1.24
		Thin, non-musc.	.63

TABLE 129

CIVILIAN OCCUPATION

SERVICE AND PROTECTIVE SERVICE WORKERS (8.47%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Balanced tall,	8.47	Sub-med.muscular	9.18
Fat,muscular	8.47	Thin,non-muscular	3.38
Very fat,very musc.	8.47	Fat,non-muscular	2.75
Med.plump,non-musc.	2.81	Very fat,non-musc.	2.64
Very fat, med.musc.	2.59	Sub-med.,non-musc.	1.82
Med. fat, musc.	2.35	Sub-med.,med.musc.	.54
Thin,med.musc.	1.80		
Med.plump,sub-med.musc.	1.77		
Fat,med.musc.	.86		
Thin,sub-med.musc.	.86		
Balanced,short to med.	.69		
Sub-med.,sub-med.musc.	.14		

TABLE 130

CIVILIAN OCCUPATION

OPERATIVES (22.66%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Balanced,tall	22.66	Very fat,med.musc.	18.52
Very fat,very musc.	22.66	Med. fat,musc.	16.12
Thin,non-muscular	8.59	Fat,muscular	13.70
Fat, non-musc.	8.37	Fat,med.musc.	5.60
Med.plump,non-musc.	7.57	Balanced,short	
Very fat, non-musc.	4.14	to med.	4.45
Thin,med.musc.	2.66	Sub-med.,musc.	2.83
Sub-med.,non-musc.	2.66	Sub-med.,med.musc.	.01
Med.plump,sub-med.musc.	1.48		
Thin,sub-med.musc.	.92		
Sub-med.,sub-med.musc.	.06		

TABLE 131

CIVILIAN OCCUPATION

CRAFTSMEN, FOREMEN (10.27%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Very fat, non-musc.	10.27	Fat, musc.	17.00
Very fat, very musc.	10.27	Fat, non-musc.	5.04
Med. plump, non-musc.	4.61	Thin, sub-med. musc.	4.95
Thin, med. musc.	3.60	Med. fat, musc.	4.02
Sub-med., non-musc.	2.84	Fat, med. musc.	2.77
Med. plump, sub-med. musc.	.89	Very fat, med. musc.	1.49
Sub-med., sub-med. musc.	.80	Sub-med., med. musc.	1.07
Sub-med., musc.	.47	Balanced, tall	.84
		Balanced, short to med.	.17
		Thin, non-muscular	.10

TABLE 132

CIVILIAN OCCUPATION

CLERICAL WORKERS (3.73%)

<u>DEFICIENCIES</u>	<u>Σ</u>	<u>EXCESSES</u>	<u>Σ</u>
Balanced, tall	3.73	Thin, med. musc.	9.60
Very fat, med. musc.	3.73	Med. plump, non-musc.	5.70
Very fat, very musc.	3.73	Fat, muscular	5.36
Fat, non-muscular	2.71	Very fat, non-musc.	3.68
Fat, med. musc.	2.64	Thin, non-musc.	3.68
Med. fat, muscular	1.69	Thin, sub-med. musc.	2.79
Sub-med., med. musc.	1.11	Sub-med., non-musc.	.84
Sub-med., sub-med. musc.	.70	Med. plump, sub-med. musc.	.29
		Sub-med., musc.	.19
		Balanced, short to med.	.05

Negroes

Civilian Occupation

Student

Negroes in the Student occupational category include 12.53 per cent, as against 18.92 per cent of Whites. This group is very low in fat and very fat types, presumably in part because students are likely to belong to the younger age groups. It has substantial excesses of Sub-medium, non-muscular; Sub-medium, medium musculature; Medium plump, non-muscular; Balanced, tall. It is deficient in Thin, sub-medium musculature, elongate; Sub-medium, muscular; Medium fat, muscular; and in all fat and very fat types of whatever musculature (except the extremely rare Very fat, very muscular). It is therefore undermuscled, partly no doubt on account of age, and partly because of lack of physical labor.

Professional and Semi-Professional

This category of Negroes is only 1.51 per cent as against 4.73 per cent of Whites. The series of 42 individuals is really too small for analysis, but it clearly shows the excesses of thin weak types, and of very fat weak types that occur in the Professional Whites.

Farmers and Farm Laborers

Farmers and farm laborers comprise 22.37 per cent of the Negro sample. This representation is roughly the same as among the Whites. The Negro farmers show the same excesses of the less muscular types that occur in White farmers. Thus the group shows excesses of Sub-medium, sub-medium musculature; Medium plump, non-muscular; Medium plump, sub-medium musculature; and in addition an anomalous excess of Fat, non-muscular. There is not the evidence of excessive thinness in this Negro group that marks off the White farmers. Deficiencies are in all very fat types and all thin types as well as most sub-medium types. Fat types of good musculature are also deficient. The good Balanced, short to medium class is deficient and the apparently less hardy Balanced, tall is in excess.

Laborers

This category includes 16.41 per cent of the Negroes and seems quite heterogeneous from a physical standpoint. It has excesses of the thinner, more muscular types, but also of several fat and very fat types irrespective of musculature.

Service Workers, Protective Service Workers

This category of Negroes includes 236 individuals or 8.47 per cent. It is again heterogeneous physically. Its excesses and deficiencies are such as to make no consistent pattern.

Operatives

This occupational category includes 22.66 per cent of the Negro series. It is clearly the occupational group that is most characterized by good muscularity, whether in sub-medium fat, medium fat, or fat men. This group is correspondingly deficient in most weak, soft types, whether thin, medium fat, or very fat.

Craftsmen, Foremen

This small group, 10.27 per cent, is again very heterogeneous. No clear pattern of body type selection is observable. The largest excesses are Fat, muscular; Fat, non-muscular; Thin, sub-medium musculature; Medium fat, muscular; and Fat, medium musculature.

Clerical Workers

This small category includes 104 individuals and is 3.73 per cent of the series. It is heavily overloaded with thin men of all degrees of muscularity. It also has excesses of Medium plump, non-muscular; Fat, muscular; Very fat, non-muscular. It is therefore highly varied and physically heterogeneous.

Civilian Occupation - Conclusions

Occupational selection of body types is not as stringent in Negroes as in Whites, but seems to proceed along similar lines. Thus in both cases students tend to be overweighted with the more slender less muscular types (possibly an age phenomenon), professional and semi-professional men with the same and also fat, weak types. In both cases farmers tend to be less muscular than might be expected, but the Negro farmers do not emphasize thinness and leanness to the extent that is characteristic of Whites. The Operative class in Negroes as in Whites is notable for good muscularity, but the Clerical class is not as rigidly selected as in Whites.

It is suggested that lack of social mobility and restricted economic, educational, and other opportunities interfere with the natural selection of body types in Negroes - less however in civilian life than, perhaps, in the Army.

TABLE 133

EDUCATION

ILLITERATE, AND READ AND WRITE (26.72%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	26.72	Fat, non-musc.	10.55
Thin, non-musc.	10.38	Fat, med. musc.	6.86
Med. fat, muscular	6.35	Thin, med. musc.	6.61
Thin, sub-med. musc.	4.72	Balanced, tall	6.61
Sub-med., muscular	3.08	Very fat, med. musc.	6.61
Med. plump, non-musc.	2.16	Med. plump, sub-med. musc.	4.01
Sub-med., med. musc.	2.12	Very fat, non-musc.	1.85
Fat, muscular	1.72	Balanced, short to med.	1.19
Sub-med., sub-med. musc.	1.25		
Sub-med., non-musc.	.40		

TABLE 134

EDUCATION

GRADE (54.45%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, non-musc.	11.59	Med. fat, musc.	14.07
Fat, non-muscular	10.81	Thin, non-musc.	8.95
Balanced, tall	10.01	Very fat, med. musc.	7.45
Fat, med. musc.	8.30	Fat, muscular	3.88
Med. plump, non-musc.	7.08	Sub-med., muscular	3.73
Med. plump, sub-med. musc.	5.67	Sub-med., med. musc.	3.49
Thin, med. musc.	4.45	Sub-med., sub-med. musc.	2.51
Very fat, very musc.	4.45		
Sub-med., non-musc.	2.87		
Thin, sub-med. musc.	.45		
Balanced, short to med.	.23		

TABLE 135

EDUCATION

HIGH, AND SPECIAL TRAINING (18.05%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, med. musc.	18.05	Very fat, very musc.	31.95
Med. fat, musc.	6.94	Med. plump, non-musc.	6.51
Fat, muscular	1.38	Thin, sub-med. musc.	5.95
Thin, med. musc.	1.38	Balanced, tall	4.17
Sub-med., med. musc.	1.12	Very fat, non-musc.	3.38
Sub-med., sub-med. musc.	1.07	Sub-med., non-musc.	2.48
Balanced, short to med.	.78	Med. plump, sub-med. musc.	1.95
Fat, non-musc.	.78	Thin, non-musc.	.90
		Fat, med. musc.	.22
		Sub-med., muscular	.13

TABLE 136

EDUCATION

COLLEGE, POST GRAD, AND PROFESSIONAL (.78%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, sub-med. musc.	.78	Very fat, non-musc.	6.36
Thin, med. musc.	.78	Very fat, med. musc.	3.98
Sub-med., muscular	.78	Med. plump, non-musc.	2.73
Balanced, tall	.78	Fat, non-muscular	1.04
Med. fat, muscular	.78	Sub-med., non-musc.	.80
Fat, med. musc.	.78	Thin, non-musc.	.53
Fat, muscular	.78		
Very fat, very musc.	.78		
Med. plump, sub-med. musc.	.29		
Sub-med., med. musc.	.24		
Sub-med., sub-med. musc.	.19		
Balanced, short to med.	.18		

Negroes

Education

The lowest educational category - illiterate, read and write - includes 26.72 per cent of Negroes, but only 4.92 per cent of Whites. This group shows some slight body type differentiation from the total series. It is low in the thin types of inferior muscularity, but high in Thin, medium. It is somewhat low in all sub-medium fat types, high in both balanced types, and in the great class Medium plump, sub-medium musculature. It is also high in four of six fat and very fat types. It is then above total series in obesity and slightly high in musculature.

The grade school category includes 54.45 per cent of Negroes, but only 45.63 per cent of Whites. It has strong excesses of sub-medium fat types of the better musculature, and its only excess in medium fat (plump) category (4) is the excellent Medium fat, muscular type. Again it is strong in Fat, muscular, and in Very fat, medium musculature. This group therefore tends to stress muscularity in the lighter builds or medium builds and is somewhat low both in extreme obesity and in pronounced thinness.

The high school and special training group is a mere 18.05 per cent of the Negroes, as against 46.31 per cent of Whites. Clearly enough, it is high in the weaker, less muscularly developed body builds of whatever grade of fatty development. It is deficient in the two great types, Sub-medium, sub-medium musculature, and Balanced, short to medium; but high in the third (and less muscular) Medium plump, sub-medium musculature.

The number of college, post-graduate, and professional Negroes is negligible, 24 individuals, or .78 per cent. However, these few, like the Whites, tend to be muscularly weak and often fat or very fat.

Conclusions on Type Differentiation According to Education

There is much more evidence of educational selection of body types among Negroes than of selection for military function. The regressions are substantially similar to those of Whites. On the whole, the superior body builds seem to occur in the Grade School category oftener than in the Illiterates. The men with High School training are inferior in musculature to those of the lower categories and the few who have "profited" by "higher education" are, as in Whites, the poorest in muscular development and probably in general physique.

TABLE 137

MARITAL STATUS

SINGLE (68.47%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Fat, muscular	43.47	Very fat, very musc.	31.53
Sub-med, muscular	28.47	Balanced, tall	20.42
Very fat, med, musc.	25.61	Thin, non-musc.	9.45
Very fat, non-musc.	18.47	Sub-med., sub-med, musc.	6.82
Fat, med, musc.	13.67	Sub-med., non-musc.	6.79
Fat, non-musc.	12.11	Balanced, short to med.	.20
Med. fat, musc.	11.06		
Thin, sub-med, musc.	8.47		
Thin, med, musc.	7.36		
Med, plump, sub-med, musc.	2.38		
Med, plump, non-musc.	1.80		
Sub-med., med, musc.	.92		

TABLE 138

MARITAL STATUS

MARRIED (30.65%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Very fat, very musc.	30.65	Fat, musc.	44.35
Balanced, tall	19.54	Very fat, med, musc.	26.49
Thin, non-musc.	9.87	Med, plump, sub-med, musc.	25.71
Sub-med., non-musc.	8.54	Sub-med., muscular	25.71
Sub-med., sub-med, musc.	6.18	Very fat, non-musc.	19.35
Balanced, short to med.	.53	Fat, med, musc.	14.58
		Fat, non-musc.	12.99
		Med. fat, musc.	10.09
		Thin, sub-med, musc.	9.35
		Thin, med, musc.	8.24
		Med, plump, non-musc.	2.68
		Sub-med. med, musc.	.48

TABLE 139

MARITAL STATUS

DIVORCED OR SEPARATED, AND WIDOWER (.89%)

<u>DEFICIENCIES</u>	<u>%</u>	<u>EXCESSES</u>	<u>%</u>
Thin, sub-med. musc.	.89	Sub-med. musc.	2.75
Thin, med. musc.	.89	Sub-med., non-musc.	1.74
Med. plump, non-musc.	.89	Med. fat. musc.	.96
Balanced, tall	.89	Sub-med., med. musc.	.43
Fat, non-musc.	.89	Thin, non-musc.	.41
Fat, muscular	.89	Balanced, short to med.	.31
Very fat, non-musc.	.89	Fat, med. musc.	.07
Very fat, med. musc.	.89		
Very fat, very musc.	.89		
Sub-med., sub-med. musc.	.65		
Med. plump, sub-med. musc.	.16		

NegroesMarital Status

68.47 per cent of Negroes are single as against 56.99 per cent of Whites. This group shows the excesses of thin men and of non-muscular men that characterizes the White celibates. To some extent this weighting is certainly connected with the younger mean age of unmarried men. Thus, the Negroes show strong excesses of Thin, non-muscular, elongate; of Sub-medium, non-muscular; Sub-medium, sub-medium musculature; and Balanced, tall. Their marked deficiencies are in most fat and very fat types irrespective of muscularity (a curious exception occurs in Very fat, very muscular, 2 individuals, both unmarried). Other deficiencies are found in the sub-medium and thin body builds that have medium to pronounced musculature.

Excesses and deficiencies of the married types are the converse of those detailed above. As in Whites, fat men, muscular men, and fat muscular men occur in disproportionately large numbers among the married. Divorced or widowed men include only 27 individuals and are insufficient for analysis (.89%).

TENTATIVE CONCLUSIONS ON THE UTILIZATION
OF ARMY PERSONNEL WITH RESPECT TO INDIVIDUAL BODY TYPE

Satisfaction of the physical requirements for admission to the United States Army, or for continued active service after admission, permits a tremendous range of body types in enlisted and commissioned personnel. These numerous body types have different capacities in strength, endurance, agility, and motor coordination. Evidence suggests that men of diverse body types are likely also to differ radically in temperament and in psychology in general.

The present survey of body type in a sample of the Army indicates marked tendencies for men of different body builds to gravitate into particular military units and military specialties. This result must come about as a combination of "natural selection", policies of assignment, and free choice of the individuals concerned. By "natural selection" I mean the process of trial and error by which men unfitted for certain duties, physically and psychologically, tend to be unsuccessful at such tasks and are transferred elsewhere, leaving the more fit as survivors. Such selection, on the physical side, is naturally most stringent in the specialties involving the greatest muscular strength, agility, endurance, coordination - such as Combat Infantry, Gunnery, Flying. On the mental side and with respect to previous skills and training, such specialties as Administration, Technical, Medical, etc., may select men without regard to physique. On the whole, this non-physical selection seems to accumulate persons of inferior physiques, from the point of view of muscularity.

We have to assume that, on the whole, the marked tendencies toward body build specialization in various military functions are in the direction of optimum utilization of personnel from the point of view of physique. But these tendencies - involving excesses of certain types and deficiencies of others in the various units and specialties - are merely drifts or trends. They suggest the direction and nature of intelligent selective processes that would operate toward a full efficiency rather than one of 50 per cent or a little more. We do not assume that optimum assignments can ever be made on the basis of physical body type alone. We do suggest that many obviously incorrect assignments may be rectified by a consideration of the present findings in regard to body type and military function.

Table 140 gives a summary of groups of body types according to their presumed fitness for heavy physical duty, medium duty, light duty, or for duty involving the minimum of strength and stamina. The heavy duty types (26.73%) are presumably capable of extreme exertion in tasks that require maximum muscular strength and endurance. The medium duty types (50.51%) fall considerably below the physical potentialities of the preceding, but are still capable of any ordinary demands upon their physiques, even the wartime military demands. The light duty types (2.96%) are slender but they may be tough, oftener than fragile. They have not the weight for great physical strength, but they may be extremely active and hardy.

The minimum duty types include men so poorly equipped in muscle and in bony structure, or so softly obese, or so emaciated that it can hardly be imagined that they are in any way physically capable. Some of these men who are sub-adults (17, 18, 19 years) may develop into better body types with training. Their potentialities for improvement are, however, very poor, in our opinion. There are 19.78 per cent of these physical inferiors.

Table 141 suggests the assignments and utilization of the various body build types according to the capacities that are indicated by their distribution in the present sample, as a result of imperfect, accidental, and intentional selective processes.

The most important subdivision of the Table has to do with Combat Types versus Service Types. The potentially first-rate combat types total 51.25 per cent of the White series. Some of these combat types have limitations in their effective utilization. The biggest class, Balanced, short to medium, is probably excellent in any type of combat specialization, as well as in many service functions.

Two types (18.51%) are put in an intermediate class and called "General Utility Types." Their distributions in units and specialties indicate that they fall considerably below the "combat types" in physical potential but are still very good and can be utilized for combat if necessary. The principal type in this intermediate class is Medium plump, sub-medium musculature, the greatest body type class in the Army, with 17.70 per cent of the total White series.

The Service Types (distinctly non-combat) comprise 30.22 per cent of the total. Some of these types have a good potentiality for fairly hard physical labor, especially those that are greatly overweight but with fair to medium musculature.

Others are so inferior physically that it would seem necessary to utilize them, if at all, in duties requiring no muscular strength and little physical endurance. It should be noted that it is wholly possible that these service groups may include more highly intelligent and educated men than those better equipped in muscularity.

It is not suggested that military assignments be made entirely on the basis of body build - only that body build be considered along with other qualifications in putting individuals into various units and specialties.

Next year's report (see Part II) is hoped to provide simple metric procedures whereby the various body build types can be determined and picked out rapidly by officers in charge of military assignment without any expert knowledge of constitutional types of human anatomy.

TABLE 140

SUMMARY OF BODY TYPES ACCORDING TO
PRESUMED CAPACITY FOR PHYSICAL DUTIESPercentage in Total
White SeriesHEAVY DUTY (Requiring maximum strength
and endurance)

Balanced, short to medium	16.52
Medium fat, muscular	5.55
Fat, muscular	1.79
Sub-medium, muscular	2.38
Very fat, very muscular	.49
Total	26.73

MEDIUM DUTY (Requiring average strength
and endurance)

Sub-medium, sub-medium musculature	14.70
Medium plump, sub-medium musculature	17.70
Balanced, tall	.81
Sub-medium, medium musculature	6.86
Fat, medium musculature	7.79
Very fat, medium musculature	2.65
Total	50.51

LIGHT DUTY (Requiring fair endurance,
no great physical strength)

Thin, sub-medium musculature, elongate	2.27
Thin, medium musculature	.69
Total	2.96

MINIMUM DUTY (Requiring no physical exertion)

Thin, non-muscular, elongate	2.94
Sub-medium, non-muscular	5.45
Medium plump, non-muscular	3.05
Fat, non-muscular and sub-medium	6.56
Very fat, non-muscular and sub-medium	1.78
Total	19.78

TABLE 141

SUMMARY OF BODY TYPES ACCORDING TO
PRESUMED FITNESS FOR MILITARY FUNCTIONSPercentage of
White Series

COMBAT TYPES

Thin (Air Force, flight; Gunnery,
Intelligence, Reconnaissance,
Communications; Medical stretcher-
bearers)

Thin, sub-medium musculature, elongate	2.27	
Thin, Medium musculature	.69	
		2.96

Sub-medium (Air Force, flight; Combat
Infantry, Gunnery, etc.)

Sub-medium, sub-medium musculature	14.70	
Sub-medium, medium musculature	6.86	
Sub-medium, muscular	2.38	
		23.94

Medium (Combat Infantry, Gunnery, Combat
Engineering, all combat duty)

Balanced, short to medium	16.52	
Medium fat, muscular	5.55	
		22.07

Fat and Very Fat (Combat Engineering,
Gunnery)

Fat, muscular	1.79	
Very fat, very muscular	.49	
		2.28
Total		51.25

GENERAL UTILITY TYPES (Combat or Service)

Medium

Medium plump, sub-medium musculature	17.70	
Balanced, tall	.81	
Total		18.51

TABLE 141

SUMMARY OF BODY TYPES ACCORDING TO
PRESUMED FITNESS FOR MILITARY FUNCTIONS

(continued)

SERVICE TYPES	Percentage of White Series
<u>Thin</u> (Administration, Technical)	
Thin, non-muscular, elongate	2.94
<u>Sub-medium</u> (Administration, Medical, Supply)	
Sub-medium, non-muscular	5.45
<u>Medium</u> (As above, also Maintenance, Transportation, Construction)	
Medium plump, non-muscular	3.05
<u>Fat and Very Fat</u>	
Fat, medium musculature (Maintenance, Transportation, Construction)	7.79
Fat, non-muscular (Supply, Medical, Administration)	6.56
Very fat, non-muscular (Supply, Medical, Admin.)	1.78
Very fat, Medium musculature (Engineering, Constr. Maintenance, etc.)	2.65
	Total 30.22

PART II: MEASUREMENTS OF BODY BUILD

INTRODUCTION (Part II)

In the report of September, 1948 (Body Build in Relation to Military Function in a Sample of the United States Army), attention was devoted to: (1) the general distribution of body types classified into 18 groups, as determined from the assessments of individuals by morphological studies of photographs and the use of the stature divided by the cube root of weight index; (2) the military utility of each of the several groups, whether for combat or service, as indicated by the extent to which various body types tended to be concentrated in distinct Army units and specialties; (3) the correlations of the body build groups with all sociological and other data compiled in the survey, such as age, months of service, birthplace, etc.

This present report deals with the more important measurements gathered on individual soldiers during the course of the survey, as such measurements apply to the various body types, previously determined from the photographs.

Dr. Francis Randall's extensive work on the metric data deals with separate measurements and combinations of measurements, but is not correlated with the individual body types as studied in this section of the survey. Consequently, this report analyzes some of the more important measurements showing the extent to which they change with shifts of the three structural bodily components in the many body types recognized. It further takes each body type large enough for analysis and compares it as a metric entity with certain other adjacent or morphologically similar types. It discusses also the detailed distribution of body groups and types in relation to stature and chest girth (which are the most important bivariate, according to Dr. Randall's studies for the setting up of equipment tariffs). Thus the report of this year supplements and completes that of the preceding year in giving the precise metric descriptions of the body builds which had been summarily classified and related to various facts of military or sociological interest.

The principal practical applications of the results of this present report will be as follows: (1) to provide the Quartermaster Corps and its anthropological staff with an accurate idea not only of the numbers and percentages and origins of various body build types to be found in the Army, but also with arithmetic means of measurements and other statistical constants of such types, which will make possible the drawing up of schedules showing, e.g., how many 434's are to be expected and what sizes of equipment are required for them, and the same for every other body type; (2) to objectify the rather difficult morphological classifications

of body types so that Army selectional personnel can easily make more effective assignments on the basis of height, weight, chest girth, and a few other measurements without expert guidance and without individual analyses of photographs by trained anthropologists. This phase of the study is treated only in a preliminary way in this report. It is hoped that the next year's report may present a complete method of body typing based upon the use of a few simple measurements and indices, without photographic assistance.*The work on this problem is nearly complete.

Material

The material dealt with is, as in the previous report, a sample of the United States Army, totalling 45,000 individuals, including nearly 40,000 Whites, more than 3,000 Negroes, and scatterings of other races (American Indians, Chinese, Japanese and sundry Mongoloids).

This report deals only with the anthropometry of the White and Negro series, and considers the following principal records and measurements taken by Dr. Randall's staff on each individual: Age, Weight, Stature, Torso Length, Bideloid, Chest Breadth, Chest Depth, Bi-iliac, Leg Length,*Arm Length, Cervicale Height, Chest Girth, Waist Girth, Hip Circumference. These have been selected from an array of more than 60 measurements taken on each individual by Dr. Randall's staff.

The statistical constants determined for each of the measurements are range, mean, standard deviation, standard error, and coefficient of variation. No further statistical elaboration has been possible under the funds allotted to the contract. Actually, straightforward and simple arithmetical and percental methods of dealing with such data are usually quite sufficient for the derivation of all essential principles and conclusions. A good deal of statistical elaboration is often "window dressing."

* Editor's note: this phase was never completed.

** Also called Insear.

DISTRIBUTION OF SOMATOTYPES

Table I (a) shows the distribution of 39,376 body types in White males arranged in an association table in which the columns represent grades of the third component, the rows grades of the first component.

There occurs in this distribution a total of 126 body types (somatotypes); 12 of these are found only in a single individual; 13 occur in two individuals only; 4 in three individuals. Thus 29 body types are so rare as to be virtually negligible. (A complete listing of the body types by percentage occurrence may be found in Table II.)

Here it is proposed to analyze the association by structural components with especial reference to the first and third components. The third component (height/ $\sqrt{\text{weight}}$ divided into 7 grades) is represented in its lower extreme (grade 1) by 612 individuals or only 1.55% of the total series. Column 1 of Table I(a) shows that grade 1 of attenuation (ectomorphy) does not occur at all with grades 1 and 2 of the first component, only once (in one person) with grade 3, and in only three body types, totalling four individuals, in grade 4.

It may be said, then, that a 1 in the third component is virtually sure to be associated with high values of the first (fat component): i.e., 7's - 25.98%; 6's - 64.54%; 5's - 8.66%. These are, of course, excessively fat, very fat, and overweight body types. Note that the very rare occurrences of 4 or 3 in the first component associated with the third are invariably extreme mesomorphs (very high in bone and muscle - 471, 461, 451, 361). In the relatively uncommon association of 5 in the first component with 1 in the third component (8.66%) the second component (bone and muscle) is 4 or higher.

Actually, in this Army series grade 1 in mesomorphy with 7 in the first component occurs in but one body type (711) and that in only two individuals. The Army fat men are usually strongly supported in the bone and muscle component (3 or higher). Thus, if one determines metrically the third (attenuation) component to be 1, the first component is 6 in more than 6 of 10 cases, 7 in nearly 3 of 10 cases, 5 in approximately one case. Scattering cases of 4 or 3 in the first component (all with high values of the second) occur in less than one of 100 cases.

Body types in which the third component is 2 are 23 in number, totalling 3326 individuals or 8.45% of this series. There are no 1's or 2's in endomorphy among the ectomorphic 2's, only 3 body types which are 3 in endomorphy (totalling five individuals - .15%), and three body types that are 7 in the first component (totalling only 23 individuals) (69% of the 2's in the third component).

TABLE I (C)

RELATION OF FIRST COMPONENT TO FIXED VALUES OF THIRD COMPONENT

		1		2		3		4		5		6		7		TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	
7	721	10	6.29	722	12	22.17	723	12	22.17	724	12	22.17	725	12	22.17	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
6	721	73	45.31	722	10	43.48	723	10	43.48	724	10	43.48	725	10	43.48	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
5	721	66	4.01	722	1	4.35	723	1	4.35	724	1	4.35	725	1	4.35	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
4	721	2	1.26	722	23	100.00%	723	23	100.00%	724	23	100.00%	725	23	100.00%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
3	721	159	100.00%	722	87.36%	723	12.64%	724	87.36%	725	12.64%	726	87.36%	727	12.64%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
2	721	66	1.51	722	84	7.30	723	84	7.30	724	84	7.30	725	84	7.30	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
1	721	92	23.29	722	639	55.57	723	639	55.57	724	639	55.57	725	639	55.57	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	214	59.24	722	397	34.52	723	397	34.52	724	397	34.52	725	397	34.52	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	63	15.95	722	29	2.52	723	29	2.52	724	29	2.52	725	29	2.52	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	395	99.99%	722	612	1	0.9	723	612	1	0.9	724	612	1	0.9	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	159	100.00%	722	1150	100.00%	723	1150	100.00%	724	1150	100.00%	725	1150	100.00%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	6454%	21.96%	722	34.56%	723	63.64%	724	34.56%	725	63.64%	726	34.56%	727	63.64%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	571	2	3.77	572	11	1.1	573	11	1.1	1.1	1.1	1.1	1.1	1.1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	571	6	11.32	572	12	1.67	573	12	1.67	1.67	1.67	1.67	1.67	1.67	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	551	20	37.74	552	306	17.19	553	306	17.19	306	17.19	306	17.19	306	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	541	25	47.17	542	1023	57.47	543	1023	57.47	1023	57.47	1023	57.47	1023	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	53	100.00%	532	414	23.26	533	414	23.26	534	414	23.26	535	414	23.26	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	53	100.00%	532	23	1.29	533	23	1.29	534	23	1.29	535	23	1.29	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	866%	85%	867%	5532%	1760	99.99%	868%	5532%	1760	99.99%	869%	5532%	1760	99.99%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	471	2	50.00	472	6	1.63	473	6	1.63	6	1.63	6	1.63	6	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	461	1	25.00	462	61	16.58	463	61	16.58	61	16.58	61	16.58	61	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	451	1	25.00	452	130	35.33	453	130	35.33	130	35.33	130	35.33	130	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	431	4	100.00%	432	136	36.96	433	136	36.96	136	36.96	136	36.96	136	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	431	4	100.00%	432	35	9.51	433	35	9.51	35	9.51	35	9.51	35	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	431	368	100.01%	432	413	100.01%	433	413	100.01%	413	100.01%	413	100.01%	413	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	65%	11.06%	652	2	1.6%	653	2	1.6%	654	2	1.6%	655	2	1.6%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	372	1	20.00	373	1	20.00	374	1	20.00	1	20.00	1	20.00	1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	352	2	40.00	353	2	40.00	354	2	40.00	2	40.00	2	40.00	2	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	361	1	100.00%	362	5	100.00%	363	5	100.00%	5	100.00%	5	100.00%	5	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	16%	0.1%	162	13%	0.4%	163	4.89%	164	4.89%	4.89%	4.89%	4.89%	4.89%	4.89%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	273	2	22.22	274	2	22.22	275	2	22.22	2	22.22	2	22.22	2	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	263	4	44.44	264	4	44.44	265	4	44.44	4	44.44	4	44.44	4	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	253	3	33.33	254	3	33.33	255	3	33.33	3	33.33	3	33.33	3	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	224	9	99.99%	225	16	8.31	226	16	8.31	16	8.31	16	8.31	16	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	186	186	99.99%	187	186	99.99%	188	186	99.99%	186	99.99%	186	99.99%	186	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	159	1	3.70	160	1	3.70	161	1	3.70	1	3.70	1	3.70	1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	145	11	40.74	146	11	40.74	147	11	40.74	11	40.74	11	40.74	11	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	135	7	25.93	136	41	50.00	137	41	50.00	41	50.00	41	50.00	41	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	125	8	29.63	126	22	26.83	127	22	26.83	22	26.83	22	26.83	22	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	34%	18.75%	342	5.40%	343	5.40%	344	5.40%	345	5.40%	5.40%	5.40%	5.40%	5.40%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	19	19	100.00%	192	19	100.00%	193	19	100.00%	19	100.00%	19	100.00%	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	246	19	21.63	247	19	21.63	248	19	21.63	19	21.63	19	21.63	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	235	188	21.63	236	188	21.63	237	188	21.63	188	21.63	188	21.63	188	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	226	601	69.16	227	601	69.16	228	601	69.16	601	69.16	601	69.16	601	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	216	869	100.00%	217	869	100.00%	218	869	100.00%	869	100.00%	869	100.00%	869	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	213	143	100.01%	214	143	100.01%	215	143	100.01%	143	100.01%	143	100.01%	143	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	159	1	3.70	160	1	3.70	161	1	3.70	1	3.70	1	3.70	1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	145	11	40.74	146	11	40.74	147	11	40.74	11	40.74	11	40.74	11	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	135	7	25.93	136	41	50.00	137	41	50.00	41	50.00	41	50.00	41	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	125	8	29.63	126	22	26.83	127	22	26.83	22	26.83	22	26.83	22	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	34%	18.75%	342	5.40%	343	5.40%	344	5.40%	345	5.40%	5.40%	5.40%	5.40%	5.40%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	19	19	100.00%	192	19	100.00%	193	19	100.00%	19	100.00%	19	100.00%	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	246	19	21.63	247	19	21.63	248	19	21.63	19	21.63	19	21.63	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	235	188	21.63	236	188	21.63	237	188	21.63	188	21.63	188	21.63	188	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	226	601	69.16	227	601	69.16	228	601	69.16	601	69.16	601	69.16	601	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	216	869	100.00%	217	869	100.00%	218	869	100.00%	869	100.00%	869	100.00%	869	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	213	143	100.01%	214	143	100.01%	215	143	100.01%	143	100.01%	143	100.01%	143	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	159	1	3.70	160	1	3.70	161	1	3.70	1	3.70	1	3.70	1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	145	11	40.74	146	11	40.74	147	11	40.74	11	40.74	11	40.74	11	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	135	7	25.93	136	41	50.00	137	41	50.00	41	50.00	41	50.00	41	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	125	8	29.63	126	22	26.83	127	22	26.83	22	26.83	22	26.83	22	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	34%	18.75%	342	5.40%	343	5.40%	344	5.40%	345	5.40%	5.40%	5.40%	5.40%	5.40%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	19	19	100.00%	192	19	100.00%	193	19	100.00%	19	100.00%	19	100.00%	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	246	19	21.63	247	19	21.63	248	19	21.63	19	21.63	19	21.63	19	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	235	188	21.63	236	188	21.63	237	188	21.63	188	21.63	188	21.63	188	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	226	601	69.16	227	601	69.16	228	601	69.16	601	69.16	601	69.16	601	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	216	869	100.00%	217	869	100.00%	218	869	100.00%	869	100.00%	869	100.00%	869	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	213	143	100.01%	214	143	100.01%	215	143	100.01%	143	100.01%	143	100.01%	143	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	1476%	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	159	1	3.70	160	1	3.70	161	1	3.70	1	3.70	1	3.70	1	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	145	11	40.74	146	11	40.74	147	11	40.74	11	40.74	11	40.74	11	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL
	721	135	7	25.93	136	41	50.00	137	41	50.00	41	50.00	41	50.00	41	TOTAL SCALARS TOTAL NUMBER MEN % OF 1% TO TOTAL

TABLE I (b)

RELATION OF SECOND COMPONENT TO FIXED VALUES OF THIRD COMPONENT

Second Component	Third Component						
	1	2	3	4	5	6	7
1	.33	.03	.08	.26	.77	8.82	31.31
2	1.30	1.87	4.41	8.96	28.96	61.95	67.68
3	21.04	25.81	35.50	49.54	56.58	27.78	1.01
4	54.16	54.07	44.88	35.99	13.10	1.45	---
5	20.23	15.70	13.80	5.11	.58	---	---
6	2.28	2.26	1.26	.13	.01	---	---
7	<u>.65</u>	<u>.27</u>	<u>.07</u>	<u>.01</u>	<u>---</u>	<u>---</u>	<u>---</u>
Totals	99.99%	100.01%	100.00%	100.00%	100.00%	100.00%	100.00%

TABLE I (c)

RELATION OF SECOND COMPONENT TO FIXED VALUES OF FIRST COMPONENT

Second Component	First Component						
	1	2	3	4	5	6	7
1	26.39	4.28	.63	.33	.13	.06	1.64
2	46.53	51.24	19.14	7.47	5.56	3.54	9.84
3	18.06	32.74	53.22	41.98	37.93	33.44	42.62
4	8.33	9.14	21.40	39.64	48.09	52.88	39.89
5	.69	2.03	5.18	9.57	7.89	9.75	6.01
6	---	.49	.39	.94	.34	.33	---
7	<u>---</u>	<u>.09</u>	<u>.03</u>	<u>.06</u>	<u>.06</u>	<u>---</u>	<u>---</u>
Totals	100.00%	100.01%	99.99%	99.99%	100.00%	100.00%	100.00%

TABLE II

DISTRIBUTION OF SOMATOTYPES IN THE TOTAL SERIES

	No.	Type	Σ
I Thin, non-muscular, elongate (Others: 115, 116, 117, 123-127, 134-137, 214-217, 221-227)	367	225	1.16
	341	226	1.08
	223	others	.70
	931	Total	2.94
II Thin, sub-med.musc., elongate	64	234	.20
	427	235	1.35
	227	236	.72
	718	Total	2.27
III Thin, med.musculature (Others: 242-246, 244)	132	245	.42
	88	others	.28
	220	Total	.69
IV Sub-med., non-musc., medium and elongate (Others: 314-317)	380	324	1.20
	1054	325	3.33
	194	326	.61
	97	others	.31
	1725	Total	5.45
V Sub-med., sub-med.musculature (Others: 331-337)	2018	334	6.44
	2321	335	7.33
	169	336	.53
	127	others	.40
	4655	Total	14.70
VI Sub-med., med.musculature	142	343	.45
	1371	344	4.33
	660	345	2.08
	2173	Total	6.86
VII Sub-med., muscular (Others: 253-256, 355, 362-364)	157	353	.50
	431	354	1.36
	164	others	.52
	752	Total	2.38
VIII Med. plump, non-muscular (Others: 413-417, 423)	560	424	1.77
	214	425	.68
	193	others	.61
	967	Total	3.05
IX Med. plump, sub-med.musculature (Others: 431, 432, 436, 437)	1481	433	4.68
	3347	434	10.57
	717	435	2.26
	60	others	.19
	5605	Total	17.70
X Balanced, short to medium	100	442	.32
	2004	443	6.33
	3125	444	9.87
	5229	Total	16.52

TABLE II
DISTRIBUTION OF SOMATOTYPES IN THE TOTAL SERIES
(cont'd)

	No.	Type	%
XI Balanced, tall	257	445	.81
XII Med. fat, muscular (Others: 452, 462)	1020 457 120 159 1756	453 454 463 others Total	3.22 1.44 .38 .50 5.55
XIII Fat, non-musc. and sub-med. musculature (Others: 523, 524)	307 1252 291 228 2078	532 533 534 others Total	.97 3.95 .92 .72 6.56
XIV Fat, med. musculature	753 1552 160 2465	542 543 544 Total	2.38 4.90 .51 7.79
XV Fat, muscular (Others: 561-563)	307 213 48 568	552 553 others Total	.97 .67 .15 1.79
XVI Very fat, non-musc., sub-med. musculature (Others: 621-625, 631, 731)	301 118 144 563	632 633 others Total	.95 .37 .45 1.78
XVII Very fat, med. musculature (Others: 643, 741)	185 522 133 840	641 642 others Total	.58 1.65 .42 2.65
XVIII Very fat, very muscular	77 79 156	651 652 Total	.24 .25 .49

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Armed Services Technical Information Agency

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The modal occurrence of endomorphy (first component) with 2 in the third component is five (53.52% of the 2's). By far the largest body group is 542 (1023 individuals). 34.58% of the 2's in the third component are 6 in the first component - most commonly 642. There are 11% of 4's in the first component, mostly with the second component 4 or higher. Thus 2 in the third component is accompanied by 5 in the first in almost half of the cases, by 6 in more than a third of cases.

Most body types that are less than 5 in the first component (when the third is 2) are high mesomorphs (high in second component). A 2 in the third component is most likely to be a 542, next a 642, then a 532, then a 632.

The 3's in the third component comprise 26 body types, totalling 10,821 subjects or 27.48% of the series. There are no 1's or 7's in the first component; 2's are exceedingly rare (three body types - 273, 263, 253 - represented by nine individuals -.08% of the 3's). The modal value of the first component in the ectomorphic 3's is 4 (56.83%), 6150 men. Commonest among the 4's are the big body build types 443, 433, 453. 5's in the first component comprise 35.80% of the total 3's in the third component, including the very common body types 543, and 533. 3's in the first component constitute 4.89% of the ecto 3's, mostly light mesomorphs. 6's comprise 2.39% of the 3's.

If the third component is 3, more than half of the body types will be 4 in the first, more than a third 5.

The 4's in the third component include 22 body types - 38.74% of the series and a total of 15,256 men. There are no 7's, no 1's, and only one 6 in the first component in this large class of 4's in the third. The modal value of the first component with 4 in the third is again 4 (60.15%), including only five body types. Here is the single most numerous type of the total series, 434 (4372 men) and the second, 444, (3639 men). More than a third of the ectomorphic 4's are 3 in the first component (34.97%), including the numerous type 334 and 344. 5's in the first component going with 4 in the third are uncommon - 3.63%, and 2's even more so - 1.23%. Most of the 5's tend to be weak in the second component.

If the third component is 4 one may expect the first to be 4 in six of ten cases, 3 in three of ten, and the rest 5's or 2's.

5's in ectomorphy comprise 19 types, 7743 men, 19.66% of the series. There are no first component 7's, 6's, or 5's, and very few 1's (.34%). 67.43% of the 5's in the third component are 3 in the first, including the big 335 and 325 classes. The others are 4's (17.46%) or 2's in the first (14.76%). Nearly seven of ten men who are 5 in the third component will be 3 in the first.

6's in the third component include thirteen body types, 1519 men, 3.86%. There are no 7's, 6's, 5's in the first component and but one 4 (426 - two individuals). The modal value of the first component with 6 in the third is 2 (57.21%). The biggest type is 226 (601 individuals). With a 6 in the third component we may expect 2 in the first in nearly six cases out of ten, 3 in three cases, and most of the rest 1's. With the exception of a very few rare types the 6's in the third component are mostly sharply attenuated, and weak in the second component.

There are only 99 individuals, seven types, and .25% of the series in the third component 7's. Nearly six of ten (57.58%) are 2's in endomorphy, the rest usually 1's (35.35%).

In general when the third component is determined metrically, the chances of fixing the first are nearly six out of ten in each grade of ectomorphy. Thus we have the following majority combinations:

6-1	64.54%
5-2	53.52%
4-3	56.83%
4-4	60.15%
3-5	67.43%
2-6	57.21%
2-7	57.58%

Second choices are:

7-1	25.98%
6-2	34.58%
5-3	35.80%
3-4	34.97%
4-5	17.46%
3-6	37.26%
1-7	35.35%

If the third component is 1, the second is 4 in 54.16% of cases, 5 in 20.23% of cases, 3 in 21.04%. If the third component is 2, the second is 4 in 54.07%, 3 in 25.81%, 5 in 15.70%. If the third component is 3, the second is 4 in 44.88%, 3 in 35.50%, 5 in 13.80%. If the third component is 4, the second is 3 in 49.54%, 4 in 35.99%. If the third component is 5, the second is 3 in 56.58%, 2 in 28.96%, 4 in 13.10%. If the third component is 6, the second is 2 in 61.95%, 3 in 27.78%. If the third component is 7, the second is 2 in 67.68%, 1 in 31.31%.

Thus we have the following common or modal combinations

of second and third components:

-41	54.16%
-42	54.07%
-43	44.88%
-34	49.54%
-35	56.58%
-26	61.95%
-27	67.68%

7's in the first (fatty) component include only 182 men or .46% of the series, divided into eight somatotypes. None of these 7's in the first component is associated with higher values of the third component than 2. 87.36% of the 7's are 1's in the third component. Mesomorphy with 6's in endo is usually 3 or 4.

6's in the first component comprise fourteen body types, 1807 men, and 4.59% of the series. 63.64% of the 6's are 2 in the third component. No 6's have the third component 5, 6, or 7, and there is but one body type (three persons) in which 6 in the first goes with 4 in the third. The modal value of the second component when the first is 6 is 4 (52.88%) followed by 3 (33.44%), 5 (9.75%). Only one rare body type (613) containing but one individual shows the minimum value of the second component going with 6 in the first.

5's in the first component total twenty body types, 6261 men and 15.90% of the series. There are no 5's, 6's, or 7's in the third component going with 5 in the first. The modal value of the second component is 4 (48.09%) followed by 3 (37.93%).

4 in the first component occurs in 25 body types, 17052 men and 43.31% of the series. No 7's and but one rare 6 body type (426 - 2 persons) go with 4 in the first component. Modal value of the second component (with 4 in the first) is 3 (41.98%) with 4 next (39.64%). All values of the second component do occur with 4's in the first but 7 and 1 are excessively rare.

3 in the first component includes body types of 28 varieties (the greatest number associated with any value of the first component, 11664 men, 29.62% of the series).

2 in the first component occurs in 2266 men, only 5.75% of the White series. Its modal association with the second component is grade 2 (22's comprise 51.24% of the 2's in endomorphy-first component). 23's are next most common with 32.74% of all 2's in the first component. Then come 24's (9.14%) and 21's (4.28%).

Our grading of body types rarely finds, then, in the Army series the very thin (1 in the first component) and the thin (grade 2 in the first component). Part of this paucity of grades 2 and 1 in the first component is due to our conviction that high values of the bone and muscle (second) component are rarely associated with thinness (less than grade 3 in the first component).

One in the first component is found in only 144 men (0.37%). It occurs in 46.53% of cases with 2 in the second, in 26.39% with 1, in 18.06% with 3. Thus in this Army series nearly three fourths of the really very thin men have their emaciation bolstered by second component developments that, at any rate, exceed 1.

Here are the modal first and second component associations:

1-2	46.53%
2-2	51.24%
3-3	53.22%
4-3	41.98%
5-4	48.09%
6-4	52.88%
7-3	42.62%

Second choices are:

1-1	26.39%
2-3	32.74%
3-4	21.40%
4-4	39.64%
5-3	37.93%
6-3	33.44%
7-4	39.89%

First component association with grades of second component are weaker than first with third or second with third.

ANALYSIS OF SEPARATE MEASUREMENTS

ANALYSIS OF AGE

Increase of first component (2nd and 3rd constant)

Age does not show a regular increase or decrease with rise of the first component. The thin men (2 in the first) appear to be younger on the average than the very thinnest men (1 in the first component). Between the 2's and the submedium fat men (3's) there is still an age decrement. From 3's to 4's, 4's to 5's, and 5's to 6's the mean age increases, but from the 6's to 7's there is a decrement. The highest age increment of 1.49 suggests that changes from 4 in the first component to 5 are the commonest age shifts of body build in young men between the ages of about 24 years and 26 years. Average age changes are:

1's to 2's \approx -1.57
2's to 3's \approx .52
3's to 4's \approx .16
4's to 5's \approx 1.49
5's to 6's \approx .48
6's to 7's \approx -1.32

Increase of second component (1st and 3rd constant)

Age rises with mesomorphy (2nd component) in this series of groups averaging from 22-28 years. Muscle increases with years (inside of these limits) more constantly than does fat.

1's to 2's \approx .80 (one pairing)
2's to 3's \approx 1.20
3's to 4's \approx .70
4's to 5's \approx .55
5's to 6's \approx .03

Increase of third component (1st and 2nd constant)

Age decrements occur with increase of the third component (i.e. taller thinner men are younger). The decrements are irregular, ranging from -.10 years to -1.15 years (only a few contrary

trends occur and are pronounced only in isolated pairs - 234-235 (.95 years), 244-245, 344-345 (.55 years). Average changes are:

1's to 2's	=	-.20
2's to 3's	=	-.30
3's to 4's	=	-.19
4's to 5's	=	-.02
5's to 6's	=	-.02
6's to 7's	=	-.25 (one pairing)

SUMMARY OF AGE

In the young men of the White sample, muscle increases after maturity roughly from 22 to 28 years, if this fact can be inferred from the increase of mean age with increase of second component. On the same basis, it appears that very thin, and thin, muscular men either lose some fat in early manhood or build up muscle without increasing fat. Very commonly the men of medium fleshiness (4 in the first component) in early young manhood, may rise to 5 (thus becoming "fat") between the mean ages of 24 to 26. Since only c. 9.36% of our sample is 31 years or over, changes of late middle age are hardly apparent. (Other data on age may be found in the 1948 report, pp.18-25).

The association of thinner taller types with younger mean age is not entirely an age phenomenon. Of course, younger men tend to be thinner than middle-aged men, but they also tend to be taller - not an age change. Similarly the association of increasing muscularity is not alone with age, but also with diminishing stature.

TABLE III

AGE

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	19 - 46	23.35 ± .88	5.65	24.20
125,126,127	67	19 - 41	24.15 ± .60	4.90	20.29
135,136,137	26	19 - 38	26.90 ± 1.06	5.40	20.07
215,216,217	97	17 - 36	22.70 ± .43	4.20	18.50
225	497	17 - 43	22.80 ± .19	4.25	18.72
226	521	17 - 38	23.00 ± .18	4.10	17.83
227	44	19 - 31	22.75 ± .48	3.20	14.07
234	72	17 - 34	23.25 ± .47	3.95	16.99
235	480	17 - 39	24.20 ± .21	4.60	19.01
236	187	17 - 37	24.00 ± .33	4.55	18.96
244	67	19 - 34	25.35 ± .58	4.75	18.74
245	115	18 - 43	25.90 ± .50	5.35	20.66
253-255,263-265,273	43	19 - 34	25.50 ± .70	4.60	18.04
314-317	133	17 - 35	22.25 ± .33	3.80	17.08
324	481	17 - 38	23.25 ± .20	4.35	18.71
325	1436	17 - 47	22.90 ± .11	4.30	18.78
326	287	17 - 36	22.50 ± .22	3.65	16.22
333	114	18 - 46	23.60 ± .42	4.45	18.86
334	2781	17 - 41	23.60 ± .08	4.35	18.43
335	3084	17 - 52	23.60 ± .08	4.55	19.28
336	212	17 - 34	23.75 ± .30	4.40	18.53
343	197	17 - 38	24.65 ± .36	5.10	20.69
344	1647	17 - 56	24.20 ± .11	4.65	19.21
345	643	17 - 40	24.75 ± .18	4.65	18.79
352,353	185	17 - 39	25.35 ± .37	5.05	25.35
354	391	17 - 38	24.90 ± .23	4.55	18.27
362,363,364	47	19 - 34	24.95 ± .62	4.25	17.03
413 - 416	57	18 - 39	23.65 ± .69	5.20	21.99
423	209	17 - 43	23.05 ± .33	4.70	20.39
424	761	17 - 47	23.35 ± .18	4.85	20.77
425	288	17 - 40	23.20 ± .26	4.45	19.18
432	35	19 - 38	24.20 ± .80	4.75	19.63
433	1944	17 - 54	24.35 ± .11	4.90	20.12

TABLE III (Cont'd)

AGE (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4356	17 - 51	24.10 \pm .07	4.80	19.92
435	803	17 - 37	23.55 \pm .16	4.55	19.32
442	132	17 - 43	24.85 \pm .45	5.20	20.93
443	2738	17 - 52	24.70 \pm .09	4.80	19.43
444	3125	17 - 50	24.30 \pm .08	4.70	19.34
445	235	17 - 36	23.15 \pm .27	4.20	18.14
452	127	18 - 38	25.55 \pm .44	4.95	19.37
453	1129	17 - 39	24.90 \pm .14	4.70	18.88
454	364	17 - 40	24.95 \pm .25	4.85	19.44
462	60	19 - 35	25.85 \pm .59	4.60	17.79
463	99	19 - 43	24.90 \pm .49	4.90	19.68
523	230	17 - 56	24.75 \pm .38	5.75	23.23
524	93	18 - 36	23.75 \pm .47	4.55	19.16
532	410	18 - 53	25.85 \pm .26	5.35	20.70
533	1621	17 - 54	25.85 \pm .14	5.55	21.47
534	326	18 - 52	26.05 \pm .30	5.35	20.54
542	1018	17 - 47	26.70 \pm .12	3.85	14.42
543	1830	17 - 49	26.20 \pm .12	5.15	19.66
544	125	17 - 38	25.05 \pm .51	5.55	22.07
551, 552	319	18 - 43	26.80 \pm .29	5.25	19.59
553	168	18 - 38	26.20 \pm .37	4.75	18.13
561-563, 571, 572	26	19 - 50	27.10 \pm .30	6.60	24.35
613, 622-624	62	19 - 53	25.55 \pm .88	6.90	27.00
631	63	19 - 62	26.45 \pm .81	6.45	24.39
632	398	17 - 43	26.15 \pm .26	5.25	20.08
633	141	18 - 39	26.05 \pm .58	6.85	26.30
641	233	18 - 44	26.90 \pm .34	5.20	19.33
642	639	17 - 54	26.90 \pm .21	5.25	19.52
643	85	17 - 48	26.70 \pm .65	5.95	22.28
651	92	19 - 48	28.00 \pm .52	5.05	18.04
652	84	19 - 44	27.70 \pm .59	5.40	19.49
711, 712, 721, 722	19	19 - 35	22.75 \pm .17	5.10	22.42
731, 732	79	18 - 44	25.80 \pm .71	6.35	24.61
741 - 751	83	18 - 39	26.40 \pm .67	6.10	23.11

ANALYSIS OF WEIGHT

Increase of first component (2nd and 3rd constant)

Weight increases with rise of the first component and these increases become progressively larger from step to step. The range in individual pairs is +6.37 lbs (226-326) to +26.67 lbs (631-731, 732). Average differences are:

1's to 2's = + 6.84
2's to 3's = + 8.41
3's to 4's = +11.23
4's to 5's = +12.69
5's to 6's = +19.72
6's to 7's = +28.71

Increase of second component (1st and 3rd constant)

Weight fluctuates with rising 2nd component. There are 12 pairings in which it decreases slightly (perhaps in connection with stature decrease), 11 pairings in which stature decreases but weight increases. Average increases are:

1's to 2's = + .59
2's to 3's = + 1.02
3's to 4's = + 2.75
4's to 5's = + 3.26
5's to 6's = + 7.15

Increase of third component (1st and 2nd constant)

In most cases weight decreases with rise in the third component. Exceptions occur in some 8 pairings of body types. Average differences are:

1's to 2's = - 4.82
2's to 3's = - 2.36
3's to 4's = - 1.89
4's to 5's = - .44
5's to 6's = - .92

These decreases therefore diminish in magnitude with rise in the third component.

SUMMARY OF WEIGHT

The following distribution of weight means clarifies the mass of figures.

<u>Mean</u>	<u>No. of Subgroups</u>	<u>\bar{x}</u>
124-129.9	3	4.48
130-139.9	12	17.91
140-149.9	12	17.91
150-159.9	13	19.40
160-169.9	7	10.45
170-179.9	8	11.94
180-189.9	4	5.97
190-199.9	5	7.46
200-222	3	4.48

Thus it may be seen that there are three modal classes of body type weights 130-139.9 - including 2's and a few 3's in the first component, 140-149.9 including mostly 3's and a few 4's in the first component, 150-159.9 including most of the 4's in the first component. The few types below 130 are the 1's in the 1st component; the few over 200 are the 7's. Types averaging 170-198 are, generally speaking, 5's and 6's in the 1st component - fat and very fat men. Weight seems, then, to depend more largely upon 1st and 3rd components than upon the 2nd.

ANALYSIS OF STATURE

Increase of first component
(2nd and 3rd constant)

Stature increases with rise of the first component. The increases are constant except in a few small grouped body types, three of which show small diminutions. Range of increases is from 1.19 cm to 4.98 cm. Differences appear to increase somewhat in the higher ranges of the first component. Averages are:

1's to 2's	= +1.59
2's to 3's	= +2.68
3's to 4's	= +2.32
4's to 5's	= +3.09
5's to 6's	= +3.28
6's to 7's	= +8.49

TABLE IV

WEIGHT

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	106 - 145	124.52 \pm 1.37	8.76	7.04
125,126,127	67	103 - 158	125.11 \pm 1.34	11.00	8.79
135,136,137	26	108 - 134	125.49 \pm 1.67	8.51	6.78
215,216,217	98	104 - 170	130.95 \pm 1.32	13.05	9.97
225	496	104 - 178	131.95 \pm .54	12.10	9.17
226	519	100 - 166	131.84 \pm .52	11.95	9.06
227	44	117 - 151	130.67 \pm 1.47	9.50	7.27
234	72	103 - 157	132.03 \pm 1.38	11.70	8.86
235	479	101 - 176	132.90 \pm .54	11.85	8.92
236	187	109 - 162	132.86 \pm .75	10.30	7.75
244	67	107 - 164	133.87 \pm 1.67	13.65	9.45
245	115	101 - 167	137.33 \pm 1.09	11.70	8.52
253-255,263-265,273	43	114 - 168	138.63 \pm 2.06	13.53	9.76
314 - 317	133	103 - 173	137.90 \pm 1.14	13.10	9.50
324	481	112 - 174	141.92 \pm .55	12.15	8.56
325	1434	104 - 200	140.44 \pm .34	12.80	9.12
326	286	108 - 180	138.21 \pm .77	12.95	9.37
333	113	117 - 170	143.93 \pm 1.12	11.95	8.30
334	2770	100 - 191	142.40 \pm .24	12.50	8.78
335	3084	105 - 188	141.75 \pm .24	13.10	9.24
336	211	102 - 186	140.69 \pm .88	12.80	9.10
343	197	110 - 184	143.31 \pm .95	13.30	9.28
344	1646	107 - 196	143.70 \pm .31	12.70	8.84
345	640	108 - 186	144.15 \pm .52	13.25	9.19
352,353	185	117 - 186	145.86 \pm .93	12.70	8.71
354	391	115 - 199	147.64 \pm .62	12.30	8.33
362,363,364	44	130 - 179	150.56 \pm 1.70	11.25	7.47
413 - 415	56	117 - 184	149.79 \pm 1.99	14.90	9.95
423	210	122 - 195	158.52 \pm .92	13.35	8.42
424	762	101 - 224	154.45 \pm .52	14.45	9.35
425	290	108 - 203	150.10 \pm .91	15.55	10.36
432	35	128 - 185	158.23 \pm 2.38	14.07	8.89
433	1944	113 - 208	157.35 \pm .03	14.05	8.93

TABLE IV (Cont'd)

WEIGHT (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4355	109 - 211	154.09 ± .22	14.35	9.31
435	803	115 - 198	151.20 ± .48	13.60	8.97
442	137	124 - 207	161.46 ± .53	15.40	9.54
443	2737	117 - 214	156.21 ± .28	14.60	9.35
444	3633	114 - 215	153.37 ± .23	13.70	8.94
445	236	127 - 186	152.23 ± .81	12.40	8.15
452	127	128 - 226	160.33 ± 1.34	15.10	9.42
453	1130	110 - 213	157.26 ± .43	14.60	9.28
454	364	125 - 210	157.33 ± .76	14.55	9.25
462	60	138 - 204	167.98 ± 2.07	16.05	9.55
463	99	127 - 197	164.60 ± 1.47	14.65	8.90
523	230	125 - 232	170.57 ± .94	14.30	8.38
524	96	133 - 201	166.85 ± 1.37	13.45	8.06
532	410	129 - 213	170.52 ± .78	15.30	9.32
533	1620	121 - 225	170.13 ± .39	15.65	9.20
534	332	125 - 213	167.25 ± .87	15.90	9.51
542	1018	130 - 227	172.58 ± .49	15.60	9.04
543	1830	124 - 220	170.01 ± .36	15.35	9.03
544	129	128 - 221	167.14 ± 1.30	14.80	8.86
551, 552	319	128 - 214	170.96 ± .92	16.35	9.56
553	168	135 - 224	172.11 ± 1.30	16.80	9.76
561-563, 571, 572	26	159 - 228	179.88 ± 3.07	15.65	8.70
613, 622-624	63	153 - 224	186.26 ± 1.86	14.80	7.95
631	63	152 - 235	194.99 ± 2.05	16.30	8.36
632	398	142 - 243	187.12 ± .85	16.90	9.03
633	142	147 - 232	186.53 ± 1.36	16.25	8.66
641	233	137 - 258	198.26 ± 1.16	17.70	8.93
642	639	150 - 264	192.16 ± .70	17.65	9.18
643	83	161 - 227	189.42 ± 1.66	15.10	7.97
651	92	163 - 242	197.59 ± 1.75	16.80	8.50
652	84	168 - 254	198.09 ± 1.84	16.90	8.53
711, 712, 721, 722	19	194 - 256	220.11 ± 3.74	16.30	7.41
731, 732	77	175 - 276	221.66 ± 2.40	21.05	9.50
741, 751	83	176 - 268	220.87 ± 2.41	22.00	9.95

Increase of second component
(1st and 3rd constant)

There is no consistency of change in stature with rise of the second component. Average differences are:

1's to 2's = - 1.90 (one example)
2's to 3's = - 3.33
3's to 4's = - .02
4's to 5's = - .02
5's to 6's = + 1.33

Increase of third component
(1st and 2nd constant)

1's to 2's = + 4.32
2's to 3's = + 4.88
3's to 4's = + 4.59
4's to 5's = + 5.07
5's to 6's = + 4.87
6's to 7's = + 5.00 (one example)

Stature rises markedly with increase of the 3rd component.

SUMMARY OF STATURE

SHORT, 165-169.9 cm - 17 Subgroups

1 dominant 3rd component
6 dominant 2nd component
6 dominant 1st component
4 balanced

MEDIUM, 170-174.9 cm - 23 subgroups

4 dominant 3rd component
5 dominant 2nd component
10 dominant 1st component
4 balanced

TALL, 175-179.9 cm - 24 subgroups

14 dominant 3rd component
7 dominant 1st component
3 balanced

VERY TALL, 180-184 cm - 3 subgroups

3 dominant 3rd component

The above table summarizes the distribution of subgroups by categories of stature and according to the dominance of structural components, or their balance, in the types within

each category. It is to be noted that the VERY TALL category contains only 3rd component dominants ("ectomorpha"), that the SHORT category includes only one 3rd component dominant (234), a rare type of small, thin men. The other types in this group include some of the most muscular body builds ("mesomorpha") and various fat and very fat short body types. In the MEDIUM category, 1st component dominants are most numerous, with 2nd component dominants only half as common and 3rd component dominants still rare. In the TALL group there are no second component dominants and a clear majority of 3rd component dominants ("ectomorpha"). There are still many dominants of the 1st component.

The body types that have a weakness in the 2nd component, with the other two components moderate to high, are the frequently gynandromorphic (pseudo-feminine types). These are conspicuously absent in the SHORTS but are interspersed through all of the other stature categories. The balanced types in the SHORT stature category include the 551's and 552's who are really tremendous men, although stubby. The others are the uncommon 442's and the very rare 333's and 244's. The 442's and 244's are men of excellent physique, and the 333's are small but adequate.

In the MEDIUM category the balanced types are 444, 443, 553, and 334. The 444's are second in number of all body types in this Army sample and are to be ranked among the best physiques and most generally capable human organisms available for military service. The 443's are just as good, but a little shorter. The 553's are rare, but they represent fat muscular men of great strength and probable endurance, good for combat duty, but too heavy for the Infantry. The 334's are also plentiful (2770 individuals) but they are light, rather small men capable of good service in the Infantry and in other branches (combat and service) where moderate strength and agility are required.

The only balanced types (2 components equal) in the tall stature category are 434, 424, and 414. The most numerous single body type in the Army is 434 (4355 men in this sample). It is a good physical type - a little over-nourished and soft, but with fairly substantial support in bony framework and musculature. It is an all around utility type - good in any unit or military specialty. (424 and 414 are weak but rare types - 818 individuals or 2.07% of the series).

In general among the subgroups or types of SHORTS, the rather inferior body types number perhaps two (532's and the 631's) - both fat and very fat men with submedium second

component (bone and muscle) support. All other types are good to excellent in physique.

In the MEDIUM stature category (170-174.9 cm) there are 7 of 23 types which might be designated as submedium to poor in physique. These are:

- 225 - thin, non-muscular, elongate
- 324 - submedium, non-muscular, medium to elongate
- 423 - medium plump, non-muscular
- 523 - fat, non-muscular
- 533 - fat, submedium musculature
- 632 - very fat, submedium musculature
- 731-2-very fat, submedium musculature

All other types are good to superior.

In the TALL category (175-179.9 cm), 15 of 24 types may be described as physically inferior. These are:

- 115-7 - very thin, non-muscular, elongate
- 125-7 - thin, non-muscular, elongate
- 214-7 - thin, non-muscular, elongate
- 226 - thin, non-muscular, elongate
- 314-7 - submedium, non-muscular, medium to elongate
- 325 - submedium, non-muscular, medium to elongate
- 413-6 - medium plump, non-muscular
- 424 - medium plump, non-muscular
- 425 - medium plump, non-muscular, elongate
- 524 - fat, non-muscular
- 534 - fat, submedium musculature
- 613-624-very fat, non-muscular
- 633 - very fat, submedium musculature
- 711 - very fat, non-muscular

In the VERY TALL group, there are but three types - two of which (227 and 326) are physically inadequate and the third (336) has minimum qualifications for combat duty.

Thus in general, with increasing categories of height, physically poor and mediocre types become much more numerous.

TABLE V

STATURE

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	168 - 189	179.38 ± .69	4.44	2.48
125,126,127	67	166 - 191	177.48 ± .71	5.84	3.29
135,136,137	26	167 - 186	175.33 ± 1.02	5.20	2.97
215,216,217	98	167 - 197	178.84 ± .63	6.28	3.51
225	496	160 - 193	174.15 ± .24	5.43	3.12
226	519	162 - 196	179.13 ± .24	5.58	3.12
227	44	176 - 193	184.13 ± .71	4.74	2.57
234	72	157 - 177	168.39 ± .58	4.88	2.90
235	479	160 - 189	173.98 ± .25	5.43	3.12
236	187	167 - 193	178.98 ± .34	4.65	2.60
244	67	154 - 180	168.61 ± .68	5.54	3.29
245	115	160 - 190	175.30 ± .48	5.20	2.97
253-255,263-265,273	43	155 - 184	170.15 ± 1.14	7.45	4.38
314 - 317	133	160 - 195	178.24 ± .54	6.25	3.51
324	481	158 - 186	172.13 ± .23	4.98	2.89
325	1434	159 - 199	176.77 ± .15	5.50	3.11
326	286	168 - 196	181.13 ± .34	5.76	3.18
333	113	156 - 176	166.61 ± .42	4.49	2.69
334	2770	150 - 191	171.97 ± .10	5.26	3.06
335	3084	158 - 196	176.75 ± .10	5.61	3.17
336	211	163 - 198	181.78 ± .38	5.57	3.06
343	197	152 - 181	166.77 ± .37	5.23	3.14
344	1646	156 - 189	171.85 ± .13	5.34	3.11
345	640	160 - 192	177.05 ± .21	5.38	3.04
352,353	185	152 - 183	166.81 ± .38	5.12	3.07
354	391	158 - 192	172.55 ± .26	5.14	2.98
362,363,364	44	157 - 179	169.06 ± .80	5.29	3.13
413 - 416	56	164 - 189	176.50 ± .72	5.40	3.06
423	210	159 - 183	171.87 ± .33	4.81	2.80
424	761	155 - 195	175.81 ± .02	5.62	3.39
425	290	161 - 198	179.87 ± .37	6.24	3.47
432	35	154 - 175	165.16 ± .87	5.15	3.12
433	1944	152 - 188	171.04 ± .12	5.27	3.08

TABLE V (Cont'd)

STATURE (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4355	157 - 195	175.19 \pm .08	5.54	3.16
435	803	163 - 195	179.77 \pm .19	5.45	3.03
442	133	151 - 175	165.89 \pm .43	5.00	3.01
443	2737	151 - 190	170.24 \pm .10	5.38	3.16
444	3632	155 - 196	174.41 \pm .09	5.40	3.10
445	240	164 - 193	179.43 \pm .32	5.08	2.83
452	127	154 - 183	165.81 \pm .44	4.95	2.99
453	1130	152 - 189	170.21 \pm .17	5.58	3.28
454	364	160 - 194	174.97 \pm .29	5.49	3.14
462	60	155 - 178	167.47 \pm .71	5.48	3.27
463	99	158 - 182	171.38 \pm .56	5.59	3.26
523	230	154 - 192	174.80 \pm .35	5.25	3.00
524	96	165 - 191	178.07 \pm .55	5.25	2.95
532	410	154 - 181	168.89 \pm .26	5.35	3.17
533	1621	155 - 192	174.08 \pm .14	5.56	3.19
534	332	162 - 194	178.68 \pm .32	5.83	3.26
542	1018	153 - 185	169.13 \pm .16	5.24	3.10
543	1830	154 - 190	173.41 \pm .13	5.42	3.13
544	129	162 - 195	178.27 \pm .46	5.27	2.96
551, 552	319	151 - 183	167.69 \pm .33	5.83	3.48
553	168	158 - 189	173.47 \pm .45	5.77	3.33
561-563, 571, 572	26	156 - 177	167.91 \pm .88	4.51	2.69
613, 622-624	63	164 - 191	176.80 \pm .69	5.49	3.11
631	63	157 - 177	168.96 \pm .55	4.40	2.60
632	398	155 - 187	172.78 \pm .27	5.43	3.14
633	142	164 - 192	177.99 \pm .47	5.65	3.17
641	233	149 - 184	169.81 \pm .35	5.34	3.14
642	639	158 - 189	173.44 \pm .22	5.61	3.23
643	83	169 - 189	178.37 \pm .53	4.80	2.69
651	92	158 - 183	168.88 \pm .51	4.86	2.88
652	84	164 - 188	174.38 \pm .56	5.14	2.95
711, 712, 721, 722	19	164 - 191	178.19 \pm 1.30	5.66	3.18
731, 732	79	156 - 191	173.94 \pm .70	6.19	3.56
741, 751	83	150 - 184	171.93 \pm .77	7.03	4.09

ANALYSIS OF TORSO LENGTH

Increase of first component (2nd and 3rd constant)

With the exception of three small pairing's (all consisting of lumped types), torso length increases with rise of the first component. These increases are small but become larger in the higher grades of the 1st component.

They are:

1's to 2's	=	+ .09
2's to 3's	=	+ .44
3's to 4's	=	+ .65
4's to 5's	=	+ .88
5's to 6's	=	+1.29
6's to 7's	=	+1.31

Increase of second component (1st and 3rd constant)

There is no consistent change of torso length with rising second component, although averages show a slight increase, as follows:

1's to 2's	=	+ .17
2's to 3's	=	+ .24
3's to 4's	=	+ .21
4's to 5's	=	+ .15
5's to 6's	=	+ .61

Increase of third component (1st and 2nd constant)

The torso length rises consistently with increase of the 3rd component, and with some regularity. Averages are as follows:

1's to 2's	=	+1.24	(only two pairings)
2's to 3's	=	+1.00	
3's to 4's	=	+1.09	
4's to 5's	=	+1.22	
5's to 6's	=	+1.11	

Thus torso length increases approximately 1 cm with each grade of rising 3rd component.

SUMMARY OF TORSO LENGTH

Absolute torso lengths are not in themselves meaningful. Individual ranges are from 45 - 79 cm and some body types encompass nearly this total series range (e.g. 225: 49-75 cm). In general, the most muscular and sturdy types (2nd component dominants) tend to average low in torso length (about 56-58 cm), but not all short torso means are found in the powerful physiques. Actually, the shortest torso means occur in some of the lighter thinner types (e.g. 234 - 56.93; 333 - 56.97; 343 - 56.61 cm), as well as in the small mesomorphs (352, 353 - 56.87 cm). The highest means of this dimension are shared by two 3rd component dominants - ectomorphs - (227 - 60.60 cm; 336 - 60.19 cm) and two 1st component dominants (633 - 60.14 cm; 711 - 722 - 60.37 cm).

Of course, torso length varies with stature, and the constitutional significance of this measurement seems to center about its relation to lge length, which is great in 2nd component dominants.

ANALYSIS OF BIDELOID

Increase of first component
(2nd and 3rd constant)

There are progressively larger increments of Bideloid with rising first component. Average differences are:

1's to 2's =	+	.29
2's to 3's =	+	.50
3's to 4's =	+	.65
4's to 5's =	+	1.05
5's to 6's =	+	1.45
6's to 7's =	+	1.96

TABLE VI

TORSO LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116, 117	34	55 - 64	59.04 ± .34	1.97	3.34
125, 126, 127	52	52 - 64	58.68 ± .40	2.89	4.93
135, 136, 137	21	55 - 64	59.69 ± .51	2.35	3.94
215, 216, 217	70	47 - 65	58.72 ± .37	3.07	5.23
225	386	49 - 75	58.30 ± .15	2.91	4.99
226	395	50 - 75	59.44 ± .14	2.79	4.69
227	34	51 - 65	60.60 ± .54	3.16	5.21
234	62	49 - 62	56.93 ± .39	3.10	5.45
235	365	49 - 67	58.43 ± .14	2.69	4.60
236	135	52 - 65	59.52 ± .21	2.45	4.12
244	52	50 - 62	57.30 ± .35	2.52	4.40
245	91	49 - 64	59.00 ± .29	2.78	4.71
253-255, 263-265, 273	27	50 - 64	57.71 ± .61	3.19	5.53
314 - 317	88	46 - 65	58.14 ± .32	3.00	5.16
324	364	45 - 64	57.71 ± .14	2.64	4.57
325	1017	49 - 67	58.64 ± .09	2.84	4.84
326	211	49 - 69	59.72 ± .21	3.04	5.09
333	95	48 - 63	56.97 ± .28	2.72	4.77
334	2208	48 - 69	57.77 ± .06	2.76	4.78
335	2381	45 - 69	59.07 ± .06	2.82	4.77
336	151	50 - 65	60.19 ± .23	2.34	4.72
343	156	49 - 62	56.61 ± .21	2.58	4.56
344	1235	45 - 65	58.13 ± .08	2.81	4.83
345	470	50 - 70	59.51 ± .14	2.99	5.02
352, 353	140	46 - 62	56.87 ± .23	2.77	4.87
354	283	50 - 67	58.31 ± .17	2.85	4.89
362, 363, 364	32	51 - 63	58.08 ± .51	2.86	4.92
413 - 415	37	50 - 64	58.40 ± .48	2.93	5.02
423	154	50 - 66	57.77 ± .24	2.94	5.09
424	533	48 - 66	58.69 ± .12	2.77	4.72
425	187	52 - 67	59.56 ± .21	2.92	4.90
432	29	49 - 61	57.07 ± .56	3.02	5.29
433	1487	46 - 71	57.69 ± .07	2.79	4.84

TABLE VI (Cont'd)
 TORSO LENGTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	3183	47 - 79	58.65 ± .05	2.86	4.88
435	563	49 - 67	59.71 ± .12	2.93	4.91
442	116	49 - 64	57.00 ± .24	2.57	4.51
443	2071	47 - 68	57.72 ± .06	2.71	4.70
444	2628	48 - 67	58.75 ± .05	2.65	4.51
445	174	50 - 66	59.78 ± .24	3.12	5.22
452	104	51 - 64	56.95 ± .24	2.49	4.37
453	840	48 - 67	57.73 ± .10	2.82	4.88
454	266	49 - 72	58.96 ± .33	5.32	9.02
462	47	51 - 62	57.13 ± .36	2.44	4.27
463	72	50 - 66	58.17 ± .39	3.29	5.66
523	158	52 - 68	58.46 ± .24	2.98	5.10
524	56	54 - 64	59.63 ± .30	2.23	3.74
532	312	45 - 67	57.26 ± .18	3.12	5.45
533	1166	48 - 69	58.80 ± .09	2.83	4.81
534	242	53 - 67	59.80 ± .17	2.70	4.52
542	755	47 - 68	57.91 ± .10	2.83	4.89
543	1335	46 - 67	58.88 ± .08	2.84	4.82
544	97	50 - 65	59.73 ± .41	4.08	6.83
551, 552	220	47 - 66	57.56 ± .20	3.02	5.25
553	126	49 - 67	58.78 ± .29	3.28	5.58
561-563, 571, 572	18	55 - 62	58.17 ± .43	1.84	3.16
613, 622-624	45	52 - 64	59.16 ± .44	2.96	5.00
631	43	51 - 63	57.82 ± .40	2.62	4.53
632	274	49 - 66	58.63 ± .19	3.11	5.30
633	97	53 - 68	60.14 ± .30	3.00	4.99
641	180	50 - 69	58.02 ± .23	3.02	5.21
642	452	50 - 69	59.39 ± .14	2.88	4.85
643	63	53 - 65	59.96 ± .35	2.79	4.65
651	74	53 - 68	58.75 ± .34	2.96	5.04
652	59	55 - 68	59.87 ± .32	2.47	4.13
711, 712, 721, 722	12	55 - 63	60.37 ± .66	2.29	3.79
731, 732	48	53 - 64	59.41 ± .39	2.73	4.60
741, 751	61	51 - 65	59.15 ± .38	2.94	4.97

Increase of second component
(1st and 3rd constant)

There is a very slight increase or no discernible change in bideltoid with rising 2nd component. Averages are:

1's to 2's	= +	.41
2's to 3's	= +	.44
3's to 4's	= +	.49
4's to 5's	= +	.55
5's to 6's	= +	.94

Increase of third component
(1st and 2nd constant)

Slight and progressively smaller decrement in bideltoid are combined with rise of the 3rd component. Averages are:

1's to 2's	= -	.71
2's to 3's	= -	.53
3's to 4's	= -	.42
4's to 5's	= -	.30
5's to 6's	= -	.21
6's to 7's	= -	.26 (one pairing)

It is suggested that bi-iliac and bideltoid (as well as by chest breadth) that the highest grades of ectomorphy show little breadth diminution of skeletal framework as compared with the middle and lower grades. In other words, skeletal breadth adaptation or compensation only goes to a certain point with progressive elongation.

The measurement ranges individually from 30 cm to 59 cm and in body type means from 42.45 cm (115, 116, 117) to 51.72 cm (741, 751). The minimum occurs then in the subgroup thinnest with the minimum of muscularity. The maximum is found in the extremely fat, extremely muscular subgroup.

TABLE VII

BIDELTOLD

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	37 - 47	42.45 ± .31	2.00	4.77
125,126,127	67	38 - 46	43.00 ± .22	1.80	4.19
135,136,137	26	40 - 49	43.26 ± .38	1.92	4.44
215,216,217	98	38 - 47	42.67 ± .20	2.01	4.71
225	493	30 - 49	43.23 ± .09	2.06	4.77
226	517	34 - 49	43.14 ± .09	1.97	4.57
227	44	38 - 48	42.88 ± .29	1.93	4.50
234	72	39 - 47	43.69 ± .22	1.87	4.28
235	477	38 - 49	43.69 ± .09	1.97	4.51
236	187	40 - 49	43.76 ± .13	1.80	4.11
244	67	37 - 48	44.08 ± .24	1.99	4.51
245	115	39 - 50	44.35 ± .18	1.89	4.26
253-255,263-265,273	43	41 - 49	45.03 ± .33	2.14	4.75
314 - 317	132	25 - 72	43.21 ± .31	3.54	8.19
324	478	37 - 57	44.01 ± .09	2.02	4.59
325	1430	37 - 59	43.81 ± .05	2.02	4.61
326	285	38 - 49	43.43 ± .11	1.83	4.21
333	113	40 - 48	44.71 ± .18	1.88	4.20
334	2757	38 - 51	44.40 ± .03	1.80	4.05
335	3068	38 - 54	44.18 ± .03	1.85	4.19
336	211	36 - 48	44.01 ± .13	1.83	4.16
343	194	40 - 51	44.99 ± .14	1.93	4.29
344	1637	38 - 51	44.88 ± .05	1.91	4.26
345	637	34 - 50	44.70 ± .08	1.97	4.41
352,353	183	40 - 55	45.70 ± .15	2.09	4.57
354	390	40 - 52	45.48 ± .09	1.83	4.02
362,363,364	44	41 - 50	45.04 ± .31	2.04	4.43
413 - 415	56	39 - 48	43.79 ± .28	2.09	4.77
423	208	41 - 50	45.57 ± .13	1.89	4.15
424	757	39 - 54	44.86 ± .07	1.84	4.10
425	289	38 - 50	44.26 ± .12	2.03	4.59
432	35	41 - 52	45.56 ± .34	2.04	4.48
433	1935	38 - 53	45.80 ± .04	1.59	3.48
434	4339	34 - 55	45.18 ± .03	1.91	4.23
435	796	39 - 57	44.84 ± .07	1.98	4.42
442	135	42 - 52	46.86 ± .16	1.91	4.11
443	2722	39 - 53	45.83 ± .04	2.02	4.41
444	3617	39 - 56	45.42 ± .03	1.94	4.27

TABLE VII (Cont'd)

BIDELTOLD (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
445	239	33 - 50	45.11 \pm .13	1.95	4.32
452	127	41 - 53	46.52 \pm .19	2.11	4.54
453	1128	40 - 54	46.24 \pm .06	1.97	4.26
454	360	41 - 52	46.09 \pm .10	1.85	4.01
462	59	44 - 54	48.08 \pm .30	2.30	4.78
463	97	42 - 52	47.23 \pm .22	2.14	4.53
523	227	41 - 53	46.25 \pm .12	1.86	4.02
524	96	40 - 50	45.65 \pm .19	1.84	4.03
532	407	37 - 56	46.95 \pm .11	2.18	4.64
533	1614	39 - 52	46.70 \pm .05	1.98	4.24
534	331	35 - 52	46.23 \pm .12	2.15	4.65
542	1015	40 - 55	47.52 \pm .06	2.07	4.36
543	1818	40 - 56	47.08 \pm .05	2.00	4.25
544	129	40 - 51	46.47 \pm .18	2.05	4.41
551, 552	318	41 - 52	47.86 \pm .13	2.26	4.72
553	166	42 - 56	47.60 \pm .18	2.32	4.87
561-563, 571, 572	26	43 - 55	48.72 \pm .43	2.17	4.45
613, 622-624	63	43 - 52	47.91 \pm .22	1.77	3.69
631	62	44 - 53	49.27 \pm .25	1.98	4.02
632	396	42 - 56	48.13 \pm .10	2.01	4.18
633	141	42 - 56	47.76 \pm .18	2.10	4.40
641	232	43 - 57	49.93 \pm .15	2.30	4.61
642	636	40 - 59	49.03 \pm .09	2.22	4.53
643	83	42 - 53	48.23 \pm .22	2.03	4.21
651	91	41 - 57	50.22 \pm .26	2.44	4.86
652	84	43 - 57	50.14 \pm .27	2.45	4.89
711, 712, 721, 722	19	45 - 53	49.87 \pm .42	1.84	3.69
731, 732	79	43 - 59	51.39 \pm .33	2.90	5.64
741, 751	83	44 - 56	51.72 \pm .28	2.53	4.89

ANALYSIS OF CHEST BREADTH

Increase of first component (2nd and 3rd constant)

Chest breadth increases with rising first component and these increments become greater in the ascending grades of endormorphy. Averages are:

1's to 2's	= +	.31
2's to 3's	= +	.29
3's to 4's	= +	.44
4's to 5's	= +	.83
5's to 6's	= +	1.21
6's to 7's	= +	1.61

Increase of second component (1st and 3rd constant)

Chest breadth also increases with rising 2nd component, but not so markedly as with the first component. Averages are:

1's to 2's	= +	.56
2's to 3's	= +	.25
3's to 4's	= +	.43
4's to 5's	= +	.42
5's to 6's	= +	.75

Increase of third component (1st and 2nd constant)

Chest breadth tends to diminish slightly and insignificantly with rising 3rd component, but there are a number of small differences in the opposite direction. Average changes are:

1's to 2's	= -	.22
2's to 3's	= -	.08
3's to 4's	= -	.25
4's to 5's	= -	.12
5's to 6's	= -	.17

The individual range of chest breadth is 18 - 49 cm., and the range of the means 25.89 cm (115,116,117) to 32.52 cm. (741,751).

TABLE VIII

CHEST BREADTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	34	22 - 29	25.89± .26	1.53	5.91
125,126,127	52	23 - 29	26.91± .21	1.51	5.61
135,136,137	21	24 - 28	26.50± .28	1.27	4.79
215,216,217	70	21 - 35	26.82± .25	2.05	7.64
225	385	22 - 44	26.95± .10	1.90	7.05
226	393	19 - 48	26.79± .11	2.25	8.40
227	34	23 - 30	26.63± .29	1.67	6.27
234	62	23 - 30	27.08± .19	1.53	5.65
235	365	20 - 31	27.13± .09	1.63	6.01
236	134	24 - 31	27.02± .13	1.46	5.40
244	51	24 - 30	27.51± .22	1.54	5.60
245	91	23 - 32	27.57± .18	1.67	6.06
253-255,263-265,					
273	27	24 - 32	28.26± .43	2.21	7.82
314-317	89	21 - 39	26.94± .22	2.05	7.61
324	362	22 - 59	27.36± .13	2.52	9.21
325	1019	20 - 45	27.12± .05	1.74	6.42
326	212	20 - 36	26.95± .12	1.73	6.42
333	96	20 - 31	27.42± .18	1.73	6.31
334	2216	18 - 45	27.54± .04	1.81	6.57
335	2375	20 - 45	27.46± .04	1.87	6.81
336	152	21 - 31	27.30± .13	1.63	5.97
343	157	24 - 45	27.97± .19	2.42	8.65
344	1232	20 - 36	27.86± .05	1.67	5.99
345	469	23 - 39	27.83± .09	1.85	6.65
352,353	137	24 - 32	28.45± .14	1.64	5.76
354	283	21 - 33	28.23± .10	1.72	6.09
362,363,364	32	25 - 36	28.73± .34	1.90	6.61
413-415	38	23 - 30	27.00± .27	1.68	6.22
423	151	24 - 31	28.01± .13	1.55	5.53
424	535	20 - 32	27.76± .07	1.64	5.91
425	185	24 - 32	27.49± .11	1.56	5.67
432	25	24 - 29	27.45± .24	1.20	4.37
433	1486	19 - 49	28.39± .05	1.94	6.83

TABLE VIII (Cont'd)

CHEST BREADTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	3177	18 - 39	28.02 \pm .03	1.72	6.14
435	561	20 - 38	27.80 \pm .07	1.69	6.08
442	115	25 - 33	28.73 \pm .15	1.57	5.46
443	2080	20 - 48	28.48 \pm .04	2.04	7.16
444	2624	21 - 39	28.30 \pm .04	1.77	6.25
445	174	23 - 38	28.06 \pm .12	1.63	5.81
452	104	24 - 34	29.00 \pm .16	1.66	5.72
453	840	20 - 37	28.67 \pm .06	1.76	6.14
454	265	24 - 34	28.69 \pm .11	1.76	6.13
462	47	26 - 35	29.73 \pm .29	1.96	6.59
463	72	21 - 33	29.48 \pm .24	2.01	2.79
523	159	23 - 38	29.15 \pm .13	1.67	5.73
524	57	20 - 30	27.91 \pm .27	2.03	7.27
532	314	19 - 34	28.98 \pm .10	1.78	6.14
533	1164	20 - 34	28.95 \pm .05	1.79	6.18
534	244	20 - 39	28.94 \pm .14	2.16	7.46
542	755	20 - 39	29.55 \pm .07	1.86	6.29
543	1334	20 - 39	29.24 \pm .05	1.80	6.16
544	97	21 - 38	29.06 \pm .20	1.93	6.64
551, 552	218	25 - 38	29.94 \pm .13	1.96	6.55
553	126	20 - 34	29.40 \pm .17	1.89	6.43
561-563, 571, 572	18	29 - 33	31.12 \pm .27	1.14	3.66
613, 622-624	45	23 - 34	29.29 \pm .30	2.01	6.86
631	44	24 - 32	30.45 \pm .25	1.69	5.55
632	275	21 - 46	29.99 \pm .13	2.23	7.44
633	97	25 - 37	30.23 \pm .19	1.83	6.05
641	180	21 - 37	31.06 \pm .16	2.11	6.79
642	447	19 - 36	30.60 \pm .10	2.08	6.80
643	61	25 - 39	30.43 \pm .30	2.35	7.72
651	72	27 - 34	31.48 \pm .21	1.79	5.69
652	59	26 - 36	31.74 \pm .24	1.84	5.80
711, 712, 721, 722	11	28 - 33	31.00 \pm .45	1.49	4.81
731, 732	50	23 - 36	32.11 \pm .32	2.27	7.07
741, 751	60	27 - 38	32.52 \pm .23	1.81	5.57

ANALYSIS OF CHEST DEPTH

Increase of first component (2nd and 3rd constant)

Chest depth increases (with exceptions of two pairings) with rising first component. Average differences are:

1's to 2's	= -	.22
2's to 3's	= +	.33
3's to 4's	= +	.53
4's to 5's	= +	.91
5's to 6's	= +	1.37
6's to 7's	= +	1.89

The differences increase in the higher ranges of the first component.

Increase of second component (1st and 3rd constant)

Increases and decreases in chest depth with rise of the second component are small and irregular. They can be disregarded. The average increments are:

2's to 3's	= +	.04
3's to 4's	= +	.19
4's to 5's	= +	.20
5's to 6's	= +	.29

Increase of third component (1st and 2nd constant)

There are small and fluctuating diminutions of chest depth with rising 3rd component. Averages are:

1's to 2's	= -	.21
2's to 3's	= -	.23
3's to 4's	= -	.29
4's to 5's	= -	.13
5's to 6's	= -	.12

Chest depth is not a reliable measurement. It varies individually in this series from 11 cm (!!)* to 37 cm, and in means from 19.36 cm (115, 116, 117, and 227) to 25.83 cm (741-751). The range in means is thus only 6.47 cm, but individually it is 26 cm.

*Probably an error in punching or recording.

TABLE IX
CHEST DEPTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	34	16 - 23	19.36±.29	1.70	8.78
125,126,127	52	15 - 29	20.35±.37	2.68	13.17
135,136,137	21	17 - 21	19.68±.29	1.34	6.81
215,216,217	70	15 - 24	19.54±.21	1.76	9.01
225	385	15 - 31	19.60±.10	1.87	9.54
226	393	14 - 29	19.50±.10	1.89	9.69
227	34	16 - 23	19.36±.27	1.55	8.01
234	62	16 - 22	19.79±.20	1.55	7.83
235	366	11 - 29	19.91±.09	1.63	8.19
236	134	14 - 29	19.68±.15	1.74	8.84
244	52	17 - 23	20.10±.18	1.32	6.57
245	91	17 - 29	20.10±.15	1.47	7.31
253-255,263-265,273	27	17 - 27	20.86±.35	1.84	8.82
314-317	89	17 - 29	20.06±.29	1.85	9.22
324	363	16 - 30	20.36±.09	1.66	8.15
325	1016	15 - 32	20.15±.06	1.76	8.73
326	211	15 - 28	19.99±.12	1.79	8.95
333	95	17 - 29	20.40±.16	1.59	7.79
334	2202	16 - 30	20.33±.03	1.53	7.53
335	2370	15 - 31	20.22±.03	1.66	8.21
336	152	16 - 29	20.22±.14	1.67	8.26
343	157	17 - 29	20.81±.15	1.84	8.84
344	1231	16 - 30	20.51±.04	1.50	7.13
345	470	16 - 32	20.47±.08	1.81	8.84
352,353	139	18 - 30	21.09±.15	1.73	8.20
354	283	17 - 29	20.79±.09	1.53	7.36
362,363,364	32	17 - 25	21.14±.28	1.58	7.47
413-415	38	17 - 24	20.63±.30	1.86	9.02
423	153	17 - 25	21.31±.11	1.42	6.66
424	533	16 - 25	20.90±.07	1.55	7.42
425	188	15 - 31	20.69±.13	1.73	8.36
432	25	19 - 23	21.25±.25	1.27	5.98
433	1482	17 - 34	21.23±.04	1.55	7.30

TABLE IX (Cont'd)

CHEST DEPTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	3176	17 - 32	20.97 \pm .03	1.63	7.77
435	560	17 - 31	20.72 \pm .07	1.61	7.77
442	115	18 - 24	21.47 \pm .12	1.29	6.01
443	2074	17 - 33	21.29 \pm .03	1.58	7.42
444	2628	15 - 32	20.99 \pm .03	1.53	7.29
445	174	16 - 29	20.77 \pm .12	1.56	7.51
452	104	18 - 23	21.51 \pm .11	1.14	5.30
453	833	17 - 26	21.32 \pm .05	1.38	6.47
454	265	16 - 26	21.34 \pm .09	1.43	6.70
462	47	19 - 28	21.92 \pm .26	1.76	8.03
463	72	18 - 29	21.89 \pm .22	1.83	8.36
523	158	19 - 29	22.12 \pm .13	1.60	7.23
524	57	13 - 25	21.64 \pm .25	1.85	8.55
532	314	17 - 29	22.32 \pm .09	1.56	6.99
533	1159	17 - 32	22.12 \pm .05	1.65	7.46
534	243	14 - 32	21.92 \pm .13	2.05	9.35
542	755	18 - 33	22.54 \pm .06	1.65	7.32
543	1340	17 - 35	22.16 \pm .06	2.30	3.79
544	97	18 - 25	21.65 \pm .13	1.27	5.87
551, 552	219	19 - 35	22.72 \pm .15	2.24	9.86
553	124	18 - 26	22.15 \pm .13	1.49	6.73
561-563, 571, 572	18	19 - 25	22.89 \pm .39	1.67	7.30
613, 622-624	45	19 - 27	22.78 \pm .26	1.73	7.59
631	44	20 - 30	23.93 \pm .27	1.81	7.56
632	274	19 - 37	23.50 \pm .12	1.97	8.38
633	96	19 - 26	23.21 \pm .16	1.52	6.55
641	177	20 - 34	24.25 \pm .15	1.96	8.08
642	446	20 - 36	23.87 \pm .09	1.89	7.92
643	61	19 - 32	23.66 \pm .23	1.80	7.61
651	74	20 - 34	24.29 \pm .25	2.17	8.93
652	59	21 - 33	24.47 \pm .24	1.86	7.60
711, 712, 721, 722	11	22 - 28	25.18 \pm .46	1.54	6.12
731, 732	50	21 - 31	25.63 \pm .27	1.92	7.49
741, 751	60	21 - 29	25.83 \pm .23	1.81	7.01

ANALYSIS OF BI-ILIAC

Increase of first component
(2nd and 3rd constant)

Increase of Bi-iliac with rising first component becomes greater in the higher grades of endomorphy. Averages are:

1's to 2's	= + .41
2's to 3's	= + .43
3's to 4's	= + .57
4's to 5's	= +1.02
5's to 6's	= +1.57
6's to 7's	= +2.12

Increase of second component
(1st and 3rd constant)

There is no constant trend of Bi-iliac change with increase of the 2nd component. It decreases in the lower grades (1's to 2's, 2's to 3's, 3's to 4's), but increases in the higher grades of mesomorphy.

Increase of third component
(1st and 2nd constant)

Shows only fluctuating and insignificant changes.

SUMMARY OF BI-ILIAC

This measurement of pelvic breadth is taken with considerable pressure in order to get down as far as possible to the bony points. It varies individually from 18 to 39 cm and in means from 27.24 cm to 34.18 cm. The mean ranges are thus small, suggesting a considerable stability of pelvic width. This extreme range of means occurs between 125, 126, 127 subgroup and the 711-722 subgroup. Thus it is probable that the difference may be more in fat deposits than in actual breadth of the bony pelvis.

TABLE X

BI-ILIAC

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	34	24 - 30	27.92 ± .24	1.40	5.01
125,126,127	52	18 - 30	27.24 ± .34	2.42	8.88
135,136,137	21	25 - 30	27.69 ± .32	1.47	5.31
215,216,217	70	23 - 38	28.15 ± .25	2.09	7.42
225	385	21 - 37	28.03 ± .09	1.84	6.56
226	394	21 - 34	28.17 ± .09	1.75	6.21
227	31	26 - 31	28.51 ± .23	1.36	4.77
234	62	23 - 31	27.66 ± .24	1.94	7.01
235	364	21 - 37	27.94 ± .10	1.85	6.55
236	134	18 - 32	27.77 ± .16	1.56	6.70
244	52	23 - 32	27.57 ± .24	1.76	6.38
245	91	23 - 37	28.18 ± .21	2.05	7.27
253-255,263-265,273	27	22 - 30	27.04 ± .34	1.75	6.47
314-317	89	20 - 33	28.53 ± .23	2.15	7.54
324	363	21 - 36	28.29 ± .10	1.84	6.50
325	1018	20 - 38	28.40 ± .06	1.85	6.51
326	212	19 - 33	28.43 ± .14	1.98	6.96
333	96	23 - 36	27.90 ± .20	1.94	6.95
334	2206	20 - 39	28.13 ± .04	1.86	6.61
335	2376	20 - 39	28.36 ± .04	1.87	6.59
336	150	22 - 33	28.50 ± .16	1.90	6.67
343	156	19 - 31	27.79 ± .13	1.60	5.76
344	1233	20 - 39	28.21 ± .06	1.89	6.70
345	468	22 - 39	28.32 ± .09	1.85	6.53
352,353	138	22 - 32	27.89 ± .16	1.87	6.70
354	284	22 - 33	28.23 ± .11	1.82	6.45
362,363,364	32	24 - 32	28.51 ± .33	1.85	6.49
413-415	38	19 - 31	29.03 ± .33	2.06	7.10
423	153	24 - 33	28.96 ± .15	1.88	6.49
424	534	21 - 39	28.92 ± .08	1.96	6.78
425	189	20 - 33	28.84 ± .15	2.11	7.32
432	25	26 - 31	28.05 ± .26	1.30	4.63
433	1486	20 - 39	28.73 ± .05	1.90	6.61
434	3182	18 - 41	28.84 ± .03	1.94	6.73

TABLE X (Cont'd)

BI-ILIAC (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
435	560	21 - 34	28.94 ± .08	1.79	6.19
442	116	25 - 33	28.63 ± .16	1.75	6.11
443	2082	18 - 38	28.53 ± .04	1.91	6.69
444	2632	20 - 37	28.65 ± .04	1.89	6.60
445	174	22 - 37	28.62 ± .14	1.83	6.39
452	104	24 - 33	28.63 ± .18	1.84	6.43
453	841	22 - 39	28.53 ± .07	1.98	6.94
454	266	24 - 34	28.52 ± .11	1.78	6.24
462	48	22 - 32	28.49 ± .27	1.89	6.63
463	71	23 - 34	28.91 ± .21	1.79	6.19
523	158	22 - 35	30.23 ± .16	2.00	6.62
524	57	22 - 34	29.85 ± .30	2.25	7.54
532	313	20 - 39	29.47 ± .12	2.21	7.50
533	1168	20 - 39	29.71 ± .06	2.11	7.10
534	243	21 - 37	29.89 ± .13	2.09	6.99
542	757	20 - 39	29.62 ± .08	2.08	7.02
543	1341	20 - 39	29.51 ± .06	2.17	7.35
544	97	25 - 33	29.52 ± .17	1.68	5.69
551, 552	219	23 - 36	29.03 ± .13	1.92	6.61
553	128	24 - 39	29.72 ± .18	2.06	6.93
561-563, 571,					
572	18	27 - 34	29.95 ± .48	2.03	6.78
613, 622-624	45	25 - 35	31.27 ± .33	2.23	7.13
631	44	26 - 36	31.63 ± .32	2.14	6.77
632	273	24 - 36	30.85 ± .14	2.30	7.46
633	97	22 - 37	30.79 ± .24	2.33	7.57
641	180	23 - 37	31.17 ± .16	2.21	7.09
642	449	21 - 39	31.13 ± .11	2.34	7.52
643	61	27 - 37	31.14 ± .27	2.14	6.87
651	73	26 - 36	31.27 ± .24	2.01	6.43
652	58	21 - 35	31.04 ± .32	2.42	7.80
711, 712, 721,					
722	11	29 - 37	34.18 ± .75	2.49	7.28
731, 732	50	26 - 38	33.23 ± .35	2.51	7.55
741, 751	60	28 - 39	33.02 ± .30	2.32	7.03

ANALYSIS OF LEG LENGTH

Increase of first component (2nd and 3rd constant)

With rises of the first component, leg length increases in most body type pairings. Exceptions occur in some of the rare types in which it has been necessary to group the means of several types because of paucity of numbers (e.g. 314, 315, 316, 317 - 413, 414, 415, 416 = -1.24). Roughly, these increases (excluding the exceptions) range from +.50 to +2.64 cm. They are as follows:

1's to 2's	= +1.13
2's to 3's	= +1.44
3's to 4's	= +1.59
4's to 5's	= +1.36
5's to 6's	= +2.10
6's to 7's	= +1.16 (only three pairings)

Thus the increments become larger in the higher grades of endomorphy.

Increase of second component (1st and 3rd constant)

With a few exceptions, leg length decreases when the second (bone and muscle) component is increased and the other two components are held constant. The decrements are smaller in the lower grades of the second component and decrease until the rise from 5's to 6's marks an increase:

1's to 2's	= -.96 (one pairing)
2's to 3's	= -.91
3's to 4's	= -.62
4's to 5's	= -.42
5's to 6's	= +.39

Actually, it may be concluded that rising second component changes mean leg length in body types, but the changes are small and irregular.

ANALYSIS OF LEG LENGTH (continued)

Increase of third component
(1st and 2nd constant)

As might be expected, length of legs rises regularly with increases of the third component. Average differences are:

1's to 2's	= +2.78
2's to 3's	= +2.72
3's to 4's	= +2.63
4's to 5's	= +2.90
5's to 6's	= +2.62
6's to 7's	= +3.11 (one pairing)

Stature is negatively correlated with the 2nd component increases, and leg length apparently also. The latter correlation is hardly strong enough to be very useful in predicting degree of mesomorphy (2nd component grading). However, leg length relative to torso length does increase with rising 2nd component.

SUMMARY OF LEG LENGTH

The individual range of leg length is 65 to 101 cm - 36 cm. The range of means is 78.10 (561-572) to 90.88 (227). Thus the shortest legs occur in highest mesomorphs (2nd component dominance), the lowest in the most extreme uncombined ectomorphic subgroup. There are a few short-legged groups that are not highly mesomorphic (432 - 79.11 cm; 244 - 80.17 cm; 333 - 80.00 cm) and also some with endo (1st component dominance) 542 - 80.00 cm; 631-79.95 cm; 641 - 79.83; 651 - 78.66; 741, 751 - 80.33). The last two subgroups are, however, mesomorphic endomorphs. The fat man who is strongly mesomorphic has short legs, the weaker fat man usually longer legs.

TABLE XI

LEG LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	81 - 94	87.86 ± .43	2.74	3.12
125,126,127	67	76 - 96	86.90 ± .55	4.49	5.17
135,136,137	26	77 - 91	84.91 ± .66	3.35	3.95
215,216,217	97	61 - 99	88.49 ± .43	4.24	4.79
225	495	74 - 99	84.87 ± .18	4.00	4.71
226	519	76 - 99	87.77 ± .17	3.97	4.52
227	44	83 - 98	90.88 ± .56	3.71	4.08
234	72	71 - 88	81.35 ± .41	3.52	4.33
235	477	73 - 98	84.42 ± .18	3.99	4.73
236	187	71 - 96	86.81 ± .26	3.62	4.17
244	67	70 - 89	80.17 ± .45	3.68	4.59
245	114	73 - 93	84.41 ± .33	3.57	4.23
253-255,263-265,					
273	43	73 - 90	80.19 ± .73	4.77	5.95
314-317	132	71 - 98	88.06 ± .35	4.05	4.60
324	479	73 - 94	83.90 ± .17	3.75	4.47
325	1431	68 - 100	86.49 ± .10	3.80	4.39
326	286	76 - 99	88.95 ± .23	3.94	4.43
333	113	72 - 87	80.00 ± .31	3.29	4.11
334	2766	70 - 98	83.06 ± .07	3.66	4.41
335	3077	70 - 99	85.77 ± .07	3.94	4.59
336	211	78 - 99	88.50 ± .28	4.01	4.53
343	194	69 - 89	79.37 ± .27	3.72	4.69
344	1642	70 - 95	82.42 ± .09	3.74	4.53
345	639	72 - 96	85.25 ± .15	3.68	4.32
352,353	185	67 - 90	78.89 ± .37	5.03	6.38
354	389	71 - 96	82.66 ± .19	3.69	4.46
362,363,364	43	72 - 88	80.24 ± .65	4.23	5.27
413-415	56	80 - 94	86.82 ± .44	3.26	3.75
423	210	72 - 94	83.27 ± .23	3.36	4.04
424	760	74 - 97	85.55 ± .14	3.88	4.54
425	289	76 - 101	88.06 ± .26	4.39	4.99
432	35	72 - 86	79.11 ± .59	3.48	4.40
433	1942	70 - 96	82.30 ± .09	3.91	4.75

TABLE XI (Cont'd)

LEG LENGTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4345	70 - 99	84.72 ± .06	3.80	4.49
435	802	75 - 100	87.43 ± .14	4.07	4.66
442	135	69 - 87	78.78 ± .34	3.99	5.06
443	2725	69 - 95	81.30 ± .07	3.76	4.62
444	3624	71 - 98	83.81 ± .06	3.79	4.52
445	239	74 - 98	86.42 ± .23	3.55	4.11
452	126	70 - 89	78.12 ± .30	3.41	4.37
453	1126	67 - 95	80.96 ± .12	3.86	4.77
454	365	74 - 97	83.64 ± .20	3.86	4.62
462	60	72 - 86	79.25 ± .51	3.96	5.00
463	97	71 - 88	80.79 ± .37	3.65	4.52
523	230	73 - 98	84.67 ± .25	3.75	4.43
524	96	79 - 97	87.20 ± .42	4.08	4.68
532	407	69 - 91	80.61 ± .18	3.64	4.52
533	1618	70 - 99	83.57 ± .10	4.03	4.82
534	332	70 - 99	86.19 ± .25	4.64	5.38
542	1014	67 - 93	80.00 ± .12	3.78	4.73
543	1827	69 - 98	82.76 ± .09	3.85	4.65
544	129	75 - 95	85.36 ± .34	3.87	4.53
551, 552	319	68 - 89	78.76 ± .22	3.85	4.89
553	168	73 - 96	82.41 ± .30	3.91	4.74
561, 563, 571, 572	26	68 - 85	78.10 ± .73	3.71	4.75
613, 622-624	63	76 - 95	85.67 ± .46	3.69	4.31
631	62	72 - 88	79.95 ± .39	3.05	3.81
632	397	70 - 93	82.40 ± .20	4.03	4.89
633	140	74 - 98	85.27 ± .35	4.15	4.87
641	233	66 - 90	79.83 ± .26	4.04	5.06
642	637	70 - 93	82.26 ± .16	3.97	4.83
643	83	77 - 95	85.40 ± .39	3.58	4.19
651	92	69 - 89	78.66 ± .37	3.57	4.54
652	84	69 - 93	82.13 ± .47	4.31	5.25
711, 712, 721, 722	19	78 - 99	86.82 ± 1.21	5.29	6.09
731, 732	79	68 - 92	81.77 ± .52	4.66	5.70
741, 751	83	65 - 89	80.33 ± .51	4.66	5.80

ANALYSIS OF ARM LENGTH

Increase of first component
(2nd and 3rd constant)

A small increase of arm length occurs with rising first component.
Averages are:

1's to 2's	=+ .46
2's to 3's	=+ .73
3's to 4's	=+ .80
4's to 5's	=+ .69
5's to 6's	=+1.19
6's to 7's	=+ .75

Increase of second component
(1st and 3rd constant)

Fluctuation with slight average decrease (7 exceptions).

Increase of third component
(1st and 2nd constant)

There is a regular increase with rising 3rd component. Averages are:

1's to 2's	=+1.60
2's to 3's	=+1.57
3's to 4's	=+1.45
4's to 5's	=+1.63
5's to 6's	=+1.43

SUMMARY OF ARM LENGTH

The individual range of arm length is 63-99 cm, and the range of the means 73.87 cm (561-572) to 81.09 cm (227). Extremely long arms are almost invariably associated with weak body builds and the shortest average occurs in a small group of 26 persons (561-572) who represent nearly the peak of muscularity combined with definitely marked obesity. Wherever first component dominants (endomorphs) are marked by relatively short arm lengths, there is strong support of the body type in second component.

TABLE XII

ARM LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	74 - 87	79.91 \pm .45	2.89	3.62
125,126,127	67	67 - 87	79.37 \pm .44	3.62	4.56
135,136,137	26	73 - 85	78.22 \pm .56	2.87	3.67
215,216,217	98	74 - 94	80.49 \pm .36	3.58	4.48
225	493	67 - 88	77.91 \pm .15	3.28	4.21
226	519	66 - 90	79.53 \pm .15	3.39	4.26
227	44	75 - 86	81.09 \pm .38	2.50	3.08
234	72	69 - 82	75.64 \pm .37	3.13	4.14
235	478	67 - 96	77.70 \pm .17	3.62	4.66
236	186	64 - 87	78.87 \pm .22	3.04	3.85
244	67	67 - 87	75.32 \pm .42	3.45	4.58
245	114	68 - 87	77.77 \pm .30	3.23	4.15
253-255,263-265,					
273	43	68 - 83	75.17 \pm .56	3.67	4.88
314-317	131	69 - 88	79.99 \pm .31	3.59	4.49
324	478	67 - 88	77.57 \pm .14	3.15	4.06
325	1427	67 - 99	78.91 \pm .09	3.50	4.44
326	286	70 - 93	80.03 \pm .21	3.57	4.46
333	112	68 - 85	75.44 \pm .28	2.93	3.88
334	2759	65 - 89	76.97 \pm .06	3.18	4.13
335	3070	64 - 90	78.51 \pm .06	3.35	4.27
336	210	70 - 89	80.07 \pm .24	3.42	4.27
343	195	66 - 82	74.96 \pm .22	3.13	4.18
344	1645	65 - 88	76.46 \pm .08	3.19	4.17
345	637	68 - 89	78.14 \pm .13	3.21	4.11
352,353	183	66 - 83	74.42 \pm .25	3.38	4.54
354	391	68 - 85	76.41 \pm .15	2.97	3.89
362,363,364	43	68 - 80	75.24 \pm .49	3.20	4.25
413-415	56	72 - 86	79.24 \pm .38	2.86	3.61
423	209	68 - 86	77.40 \pm .22	3.19	4.12
424	758	68 - 89	78.53 \pm .12	3.31	4.21
425	288	70 - 90	79.86 \pm .22	3.80	4.76
432	34	67 - 79	74.54 \pm .51	2.97	3.98
433	1936	66 - 87	76.70 \pm .07	3.18	4.15

TABLE XII (Cont'd)

ARM LENGTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4333	66 - 89	78.08 \pm .05	3.26	4.18
435	796	70 - 92	79.48 \pm .12	3.31	4.16
442	137	65 - 86	74.92 \pm .30	3.54	4.73
443	2726	64 - 96	76.01 \pm .06	3.32	4.37
444	3616	65 - 90	77.36 \pm .05	3.20	4.14
445	239	70 - 88	78.88 \pm .19	2.93	3.71
452	125	64 - 85	74.15 \pm .28	3.17	4.28
453	1129	65 - 88	75.63 \pm .09	3.19	4.22
454	360	67 - 94	77.26 \pm .18	3.46	4.48
462	60	67 - 82	74.37 \pm .42	3.26	4.38
463	96	66 - 82	75.47 \pm .32	3.16	4.19
523	227	67 - 89	78.12 \pm .21	3.22	4.12
524	96	70 - 86	79.64 \pm .31	3.06	3.84
532	408	67 - 89	75.64 \pm .16	3.16	4.18
533	1612	63 - 89	77.51 \pm .08	3.41	4.40
534	332	69 - 89	79.07 \pm .19	3.52	4.45
542	1015	65 - 86	75.36 \pm .10	3.17	4.21
543	1819	65 - 89	76.97 \pm .08	3.23	4.20
544	127	70 - 88	77.87 \pm .30	3.41	4.38
551, 552	319	63 - 88	74.21 \pm .19	3.37	4.54
553	167	67 - 86	76.65 \pm .27	3.45	4.50
561-563, 571-572	26	68 - 78	73.87 \pm .51	2.59	3.51
613, 622-624	63	71 - 88	79.05 \pm .40	3.21	4.06
631	62	68 - 82	75.80 \pm .39	3.07	4.05
632	396	65 - 86	76.88 \pm .16	3.25	4.23
633	140	67 - 87	78.67 \pm .29	3.44	4.37
641	233	66 - 82	75.47 \pm .21	3.13	4.15
642	637	65 - 89	76.90 \pm .13	3.36	4.37
643	83	67 - 86	78.35 \pm .33	3.06	3.91
651	92	63 - 81	74.82 \pm .33	3.13	4.18
652	84	69 - 86	77.12 \pm .38	3.44	4.46
711, 712, 721, 722	19	70 - 85	79.08 \pm .74	3.21	4.06
731, 732	77	70 - 88	77.18 \pm .41	3.57	4.63
741, 751	83	63 - 84	76.31 \pm .44	4.01	5.25

ANALYSIS OF CERVICALE HEIGHT

Increase of first component (2nd and 3rd constant)

Increase in first component carries with it increase in cervicale height with three insignificant exceptions. Average increases are:

1's to 2's	=	+ 1.81
2's to 3's	=	+ 1.99
3's to 4's	=	+ 2.49
4's to 5's	=	+ 2.64
5's to 6's	=	+ 3.49
6's to 7's	=	+ 2.37

Increase of second component (1st and 3rd constant)

Increase in the second component seems to carry with it diminution in cervicale height until high mesomorphy is attained - thereafter an increase. Average differences are:

2's to 3's	=	- .67
3's to 4's	=	- .31
4's to 5's	=	- .36
5's to 6's	=	+ 1.27

Increase of third component (1st and 2nd constant)

The rise in cervicale height with increase in third component is almost regular. Averages are:

1's to 2's	=	+ 4.27
2's to 3's	=	+ 3.63
3's to 4's	=	+ 3.99
4's to 5's	=	+ 4.23
5's to 6's	=	+ 4.31

Greatest difference in individual pairing is 651-652 = + 5.07

SUMMARY OF CERVICALE HEIGHT

This measurement is, of course, highly correlated with stature of which it constitutes the major part (since it is the height of the 7th cervical vertebra from the ground). It is of more interest for clothing specifications than for body typing. The individual range is 123 cm to 178 cm and the range of means 141.98 cm (452) to 158.47 cm (227).

TABLE XIII

CERVICAL HEIGHT

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	144 - 162	154.33 \pm .64	4.10	2.66
125,126,127	65	141 - 166	152.30 \pm .66	5.29	3.47
135,136,137	25	141 - 160	150.09 \pm 1.00	4.98	3.32
215,216,217	94	141 - 171	154.41 \pm .65	6.29	4.07
225	480	134 - 166	149.57 \pm .24	5.32	3.56
226	500	138 - 178	154.12 \pm .24	5.45	3.54
227	42	149 - 166	158.47 \pm .38	4.44	2.80
234	69	134 - 153	144.35 \pm .57	4.75	3.29
235	458	134 - 167	149.07 \pm .24	5.17	3.47
236	180	133 - 165	153.61 \pm .34	4.57	2.98
244	61	130 - 156	144.35 \pm .70	5.45	3.78
245	111	135 - 162	149.89 \pm .48	5.05	3.37
253-255,263-265,					
273	41	132 - 158	144.77 \pm 1.13	7.23	4.99
314 - 317	130	134 - 169	153.68 \pm .54	6.20	4.03
324	462	133 - 160	147.88 \pm .23	5.01	3.39
325	1372	135 - 171	151.98 \pm .15	5.30	3.49
326	269	142 - 171	155.82 \pm .34	5.60	3.59
333	109	133 - 154	143.34 \pm .43	4.52	3.15
334	2653	129 - 166	147.54 \pm .10	5.17	3.50
335	2957	134 - 172	151.65 \pm .10	5.42	3.57
336	197	137 - 171	155.95 \pm .39	5.52	3.54
343	189	126 - 160	142.59 \pm .38	5.21	3.65
344	1546	130 - 162	147.11 \pm .14	5.21	3.54
345	610	135 - 166	151.57 \pm .21	5.20	3.43
352,353	173	128 - 158	142.48 \pm .39	5.11	3.59
354	365	134 - 166	147.47 \pm .26	5.00	3.39
362,363,364	41	134 - 154	144.50 \pm .75	4.78	3.31
413 - 415	55	139 - 177	152.72 \pm .85	6.30	4.13
423	202	135 - 158	147.96 \pm .32	4.52	3.05
424	726	130 - 168	151.32 \pm .20	5.46	3.61
425	270	137 - 173	154.68 \pm .37	6.04	3.90
432	34	131 - 156	142.71 \pm .97	5.66	3.97
433	1859	130 - 154	146.94 \pm .12	5.10	3.47
434	4119	132 - 171	150.55 \pm .08	5.32	3.53

TABLE XIII (Cont'd)

CERVICAL
HEIGHT (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
435	752	136 - 169	154.39 ±	.20	5.37	3.48
442	134	127 - 158	142.89 ±	.51	5.87	4.11
443	2605	123 - 164	146.00 ±	.11	5.28	3.62
444	3409	130 - 168	149.57 ±	.09	5.28	3.53
445	225	134 - 164	153.28 ±	.33	4.97	3.2.
452	122	131 - 157	141.98 ±	.45	4.95	3.49
453	1060	124 - 166	145.64 ±	.17	5.40	3.71
454	331	137 - 169	149.79 ±	.29	5.35	3.57
462	54	131 - 155	143.84 ±	.70	5.13	3.57
463	89	133 - 156	146.61 ±	.57	5.40	3.68
523	214	130 - 167	150.66 ±	.34	4.91	3.26
524	91	141 - 166	154.41 ±	.54	5.17	3.35
532	387	130 - 163	145.35 ±	.26	5.15	3.54
533	1540	131 - 168	149.74 ±	.14	5.50	3.67
534	322	136 - 168	153.47 ±	.26	4.61	3.00
542	965	130 - 161	145.10 ±	.16	5.10	3.51
543	1708	129 - 164	148.82 ±	.13	5.32	3.57
544	125	139 - 171	152.80 ±	.47	5.26	3.44
551, 552	292	129 - 159	143.71 ±	.32	5.49	3.82
553	156	131 - 162	148.37 ±	.47	5.86	3.95
561-563, 571, 572	24	132 - 150	143.95 ±	.79	3.88	2.70
613, 622-624	60	141 - 167	152.50 ±	.69	5.35	3.51
631	57	132 - 154	145.36 ±	.61	4.59	3.16
632	372	133 - 163	148.91 ±	.27	5.29	3.55
633	131	141 - 167	153.50 ±	.48	5.55	3.62
641	222	128 - 161	146.17 ±	.35	5.25	3.59
642	600	133 - 166	149.31 ±	.22	5.42	3.63
643	79	140 - 163	153.56 ±	.54	4.80	3.13
651	87	133 - 155	144.91 ±	.47	4.35	3.00
652	78	139 - 164	149.98 ±	.57	5.03	3.35
711, 712, 721, 722	18	141 - 168	153.28 ±	1.48	6.27	4.09
731, 732	74	133 - 165	149.88 ±	.70	6.05	4.04
741, 751	78	129 - 160	147.98 ±	.75	6.66	4.50

ANALYSIS OF CHEST GIRTH

Increase of first component
(2nd and 3rd constant)

Chest girth invariably increases with rise in the first component.

The increments are larger in the higher grades. Mean differences are:

1's to 2's	= + .81
2's to 3's	= +1.42
3's to 4's	= +2.09
4's to 5's	= +3.19
5's to 6's	= +4.66
6's to 7's	= +6.15

Increase of second component
(1st and 3rd constant)

Small and irregular increases of chest circumference occur with rising 2nd component. Averages are:

1's to 2's	= 0
2's to 3's	= + .86
3's to 4's	= +1.09
4's to 5's	= +1.15
5's to 6's	= +1.65

Increase of third component
(1st and 2nd constant)

Chest circumference decreases with rise of the 3rd component. These decreases are most marked in the lower grades. Averages are:

1's to 2's	= -1.29
2's to 3's	= -1.15
3's to 4's	= -1.22
4's to 5's	= - .97
5's to 6's	= - .80
6's to 7's	= - .90

SUMMARY OF CHEST GIRTH

The individual range of chest girth is 65 cm-140 cm. The range of means is 83.04 (115,116,117) to 110.08 (741-751). These are respectively the thinnest, weak, and the fattest, strong types.

TABLE XIV

CHEST GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	74 - 91	83.04 ± .59	3.76	4.55
125,126,127	67	73 - 99	85.15 ± .55	4.50	5.28
135,136,137	26	74 - 92	85.83 ± .79	4.03	4.70
215,216,217	98	74 - 95	84.74 ± .45	4.41	5.20
225	496	74 - 96	85.78 ± .17	3.89	4.53
226	514	73 - 95	85.28 ± .18	4.03	4.73
227	44	77 - 91	84.38 ± .50	3.31	3.92
234	75	76 - 100	87.44 ± .53	4.45	5.09
235	479	75 - 102	87.09 ± .19	4.23	4.86
236	187	78 - 98	86.42 ± .26	3.61	4.18
244	66	82 - 97	88.74 ± .40	3.28	3.70
245	115	76 - 101	88.77 ± .39	4.15	4.68
253-255,263-265,					
273	43	81 - 101	89.94 ± .71	4.67	5.19
314-317	132	75 - 98	86.47 ± .35	4.05	4.68
324	480	77 - 99	88.41 ± .19	4.09	4.63
325	1427	73 - 105	87.56 ± .11	4.09	4.67
326	282	74 - 99	86.37 ± .24	3.98	4.61
333	113	82 - 102	89.91 ± .33	3.55	3.95
334	2760	68 - 104	89.22 ± .08	3.99	4.47
335	3079	65 - 103	88.28 ± .07	4.10	4.64
336	210	72 - 99	87.58 ± .29	4.16	4.75
343	194	77 - 104	91.16 ± .31	4.38	4.80
344	1640	78 - 106	90.33 ± .10	4.20	4.65
345	639	79 - 102	89.78 ± .16	3.92	4.37
352,353	183	82 - 108	92.48 ± .33	4.48	4.84
354	390	78 - 107	91.72 ± .22	4.25	4.63
362,363,364	44	83 - 104	92.54 ± .62	4.13	4.46
413-415	56	76 - 99	89.13 ± .68	5.07	5.69
423	209	79 - 104	92.64 ± .29	4.23	4.57
424	754	74 - 107	90.67 ± .16	4.28	4.72
425	290	78 - 100	89.07 ± .25	4.33	4.86
432	35	84 - 103	92.85 ± .82	4.84	5.21
433	1935	77 - 108	93.05 ± .10	4.18	4.49

TABLE XIV (Cont'd)

CHEST GIRTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4340	75 - 107	91.37 \pm .06	4.28	4.68
435	799	77 - 105	90.18 \pm .15	4.14	4.59
442	136	78 - 112	95.45 \pm .41	4.77	5.00
443	2723	80 - 112	93.21 \pm .08	4.32	4.63
444	3624	72 - 110	91.95 \pm .07	4.18	4.55
445	239	79 - 103	90.60 \pm .25	3.91	4.32
452	124	83 - 107	95.18 \pm .37	4.07	4.28
453	1119	81 - 112	94.25 \pm .13	4.36	4.63
454	361	80 - 108	93.86 \pm .23	4.46	4.75
462	59	87 - 109	97.76 \pm .63	4.84	4.95
463	99	82 - 105	96.44 \pm .47	4.72	4.89
523	230	79 - 109	95.52 \pm .27	4.09	4.28
524	96	84 - 103	93.67 \pm .41	4.03	4.30
532	404	85 - 109	97.03 \pm .21	4.31	4.44
533	1616	79 - 115	96.04 \pm .11	4.42	4.60
534	332	80 - 109	94.50 \pm .25	4.63	4.90
542	1015	73 - 115	98.12 \pm .15	4.84	4.93
543	1822	79 - 114	96.47 \pm .10	4.43	4.59
544	129	80 - 107	95.35 \pm .39	4.47	4.69
551, 552	318	85 - 112	98.36 \pm .27	4.75	4.83
553	167	87 - 108	97.29 \pm .34	4.42	4.54
561-563, 571, 572	25	91 - 112	100.17 \pm 1.05	5.27	5.26
613, 622-624	62	88 - 113	99.63 \pm .59	4.62	4.64
631	63	88 - 115	102.96 \pm .63	4.98	4.84
632	395	88 - 125	100.86 \pm .25	5.01	4.97
633	142	89 - 114	100.15 \pm .40	4.73	4.72
641	232	93 - 119	104.67 \pm .33	5.09	4.86
642	637	84 - 131	102.55 \pm .20	4.95	4.83
643	83	90 - 118	100.97 \pm .52	4.72	4.67
651	92	88 - 123	104.80 \pm .58	5.53	5.28
652	84	92 - 119	105.14 \pm .50	4.55	4.33
711, 712, 721, 722	19	98 - 116	106.66 \pm 1.16	5.06	4.74
731, 732	79	98 - 128	108.97 \pm .69	6.10	5.60
741, 751	83	95 - 140	110.08 \pm .78	7.09	6.44

ANALYSIS OF WAIST GIRTH

Increase of first component (2nd and 3rd constant)

Waist girth invariably increases regularly with rise of the first component. Averages are:

1's to 2's	= + 2.10
2's to 3's	= + 2.44
3's to 4's	= + 3.51
4's to 5's	= + 4.51
5's to 6's	= + 6.56
6's to 7's	= + 7.56

Increase of second component (1st and 3rd constant)

Waist girth diminishes slightly and irregularly with rise of the second component. Averages are:

1's to 2's	= - .30 (only two examples)
2's to 3's	= - .26
3's to 4's	= - .42
4's to 5's	= - .41
5's to 6's	= - .44

Increase of third component (1st and 2nd constant)

Waist girth consistently diminishes with rising third component. Averages are:

1's to 2's	= - 3.95
2's to 3's	= - 1.76
3's to 4's	= - 1.52
4's to 5's	= - 1.18
5's to 6's	= - 1.12

SUMMARY OF WAIST GIRTH

The individual range of waist girth is from 53 cm to 123 cm. The range of means is 67.43 cm (115,116,117) to 103.23 cm (731,732). The largest waist girths occur in the fat men with sub-medium second component support, not in the strongest nor yet in the weakest, from the point of view of muscularity.

TABLE XV
WAIST GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	41	59 - 81	67.43 ± .63	4.05	6.01
125,126,127	67	61 - 79	67.72 ± .46	3.73	5.51
135,136,137	26	61 - 76	67.91 ± .63	3.21	4.73
215,216,217	97	58 - 85	70.29 ± .45	4.39	6.25
225	494	59 - 92	70.62 ± .18	3.89	5.51
226	519	54 - 89	69.77 ± .17	3.98	5.70
227	44	63 - 76	68.34 ± .42	2.81	4.11
234	72	63 - 86	70.60 ± .44	3.72	5.27
235	478	60 - 95	70.69 ± .19	4.12	5.83
236	186	56 - 92	69.31 ± .30	4.07	5.87
244	66	63 - 88	71.34 ± .53	4.27	5.99
245	115	60 - 96	71.02 ± .39	4.22	5.94
253-255,263-265,					
273	43	65 - 92	72.15 ± .82	5.36	7.43
314- 317	133	61 - 94	73.07 ± .43	4.93	6.75
324	479	60 - 90	74.57 ± .18	3.91	5.24
325	1429	61 - 96	73.00 ± .11	3.99	5.47
326	285	63 - 98	71.98 ± .26	4.39	6.10
333	111	66 - 88	74.50 ± .33	3.52	4.72
334	2768	60 - 96	73.93 ± .07	3.88	5.25
335	3084	53 - 98	72.83 ± .07	4.07	5.59
336	209	61 - 84	71.92 ± .25	3.58	4.98
343	194	65 - 84	74.50 ± .25	3.54	4.75
344	1641	64 - 97	73.71 ± .10	3.85	5.22
345	638	60 - 89	72.73 ± .15	3.79	5.21
352,353	184	66 - 84	74.81 ± .27	3.61	4.83
354	387	64 - 88	74.08 ± .19	3.66	4.94
362,363,364	43	67 - 81	74.26 ± .54	3.56	4.79
413 - 415	56	64 - 87	77.08 ± .64	4.78	6.20
423	210	71 - 94	80.18 ± .31	4.48	5.59
424	759	65 - 100	78.04 ± .18	4.87	6.24
425	290	60 - 90	75.71 ± .26	4.37	5.77
432	35	71 - 87	79.45 ± .78	4.64	5.84
433	1939	66 - 98	79.61 ± .10	4.36	5.48

TABLE XV (Cont'd)

WAIST GIRTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
434	4336	61 - 99	77.51 ± .07	4.44	5.73
435	801	65 - 98	75.87 ± .16	4.41	5.81
442	136	70 -103	80.99 ± .41	4.76	5.88
443	2729	60 - 98	78.29 ± .08	4.30	5.49
444	3620	62 - 93	76.60 ± .07	4.09	5.34
445	238	63 - 85	75.03 ± .23	3.60	4.80
452	126	70 - 96	79.66 ± .42	4.75	5.96
453	1125	66 - 97	78.08 ± .13	4.30	5.51
454	364	68 - 90	76.98 ± .21	3.96	5.14
462	59	71 - 88	80.67 ± .49	3.78	4.69
463	98	71 - 87	78.35 ± .37	3.64	4.65
523	230	67 -101	84.10 ± .33	4.98	5.92
524	96	72 - 92	82.29 ± .49	4.62	5.86
532	408	73 -103	85.75 ± .26	5.24	6.11
533	1617	70 -102	83.88 ± .12	4.93	5.88
534	332	64 - 97	81.62 ± .27	4.91	6.02
542	1014	69 -102	85.44 ± .16	4.98	5.83
543	1827	68 - 98	83.07 ± .11	4.79	5.77
544	129	67 - 94	81.08 ± .38	4.28	5.28
551, 552	317	71 - 99	83.69 ± .29	5.11	6.11
553	167	71 - 96	82.57 ± .34	4.41	5.34
561-563, 571, 572	26	75 -102	84.72 ± 1.04	5.29	6.24
613, 622-624	63	77 -104	90.08 ± .76	6.01	6.67
631	62	83 -115	96.66 ± .85	6.72	6.95
632	394	74 -108	90.91 ± .28	5.51	6.06
633	141	72 -108	89.41 ± .48	5.68	6.35
641	233	72 -114	94.88 ± .42	6.34	6.68
642	638	75 -115	91.46 ± .22	5.68	6.21
643	83	81 -107	88.86 ± .57	5.21	5.86
651	92	81 -114	94.02 ± .61	5.89	6.26
652	82	81 -103	91.34 ± .48	4.33	4.74
711, 712, 721, 722	19	86 -108	98.45 ± 1.37	5.96	6.05
731, 732	77	72 -119	103.23 ± .79	6.97	6.75
741, 751	80	87 -123	102.61 ± .79	7.07	6.89

ANALYSIS OF HIP CIRCUMFERENCE

Increase of first component (2nd and 3rd constant)

Hip girth increases with rising first component, the increments growing larger in the steps between the higher grades of endomorphy. Average increases are:

1's to 2's = +1.56
2's to 3's = +2.00
3's to 4's = +3.17
4's to 5's = +3.32
5's to 6's = +4.73
6's to 7's = +6.08

Increase of second component (1st and 3rd constant)

With rising second component hip girth fluctuates irregularly, as can be seen from the following average changes:

1's to 2's = + .56
2's to 3's = - .38
3's to 4's = - .05
4's to 5's = + .18
5's to 6's = +1.43

Increase of third component (1st and 2nd constant)

Hip girth decreases irregularly with rise of the 3rd component. The decrements grow smaller in the higher grades. Averages are:

1's to 2's = -1.28
2's to 3's = - .87
3's to 4's = - .69
4's to 5's = - .81
5's to 6's = - .26

SUMMARY OF HIP CIRCUMFERENCE

The minimum hip circumference in individuals is 67 cm and the maximum is 127 cm. The range of the means is 85.34 cm (116,117,) to 109.66 cm (711,722). These are respectively the thinnest, least muscular and the fattest, least muscular subgroup.

TABLE XVI

HIP GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116,117	38	77 - 92	85.34 \pm .61	3.20	3.75
125,126,127	67	79 - 93	85.90 \pm .84	3.08	3.59
135,136,137	26	79 - 89	85.41 \pm .67	2.71	3.17
215,216,217	94	73 - 95	86.74 \pm .38	3.68	4.24
225	495	77 -100	87.55 \pm .17	3.70	4.23
226	518	75 - 98	87.23 \pm .16	3.62	4.15
227	44	80 - 91	86.63 \pm .44	2.93	3.38
234	72	80 - 97	87.99 \pm .45	3.85	4.38
235	476	72 - 97	87.34 \pm .15	3.37	3.86
236	186	79 - 99	87.37 \pm .25	3.42	3.91
244	65	79 - 97	87.90 \pm .57	4.60	5.23
245	116	76 - 99	88.15 \pm .34	3.63	4.12
253-255,263-265,					
273	54	81 - 96	88.86 \pm .51	3.74	4.21
314-317	129	80 -100	88.98 \pm .34	3.87	4.35
324	479	81 -101	90.57 \pm .16	3.44	3.80
325	1427	76 -103	89.51 \pm .10	3.67	4.10
326	284	78 -101	88.93 \pm .22	3.73	4.19
333	112	82 - 97	90.41 \pm .32	3.34	3.69
334	2767	67 -100	90.03 \pm .07	3.79	4.21
335	3091	75 -104	89.54 \pm .07	3.74	4.18
336	210	78 - 99	89.36 \pm .23	3.40	3.80
343	192	81 -100	90.39 \pm .25	3.44	3.81
344	1632	79 -103	90.15 \pm .09	3.54	3.93
345	638	78 - 98	89.78 \pm .14	3.45	3.89
352,353	182	82 - 98	90.76 \pm .25	3.40	3.75
354	386	82 -104	90.70 \pm .17	3.40	3.75
362,363,364	47	84 - 98	91.36 \pm .48	3.28	3.59
413 - 415	55	83 -104	93.41 \pm .56	4.19	4.49
423	208	83 -103	95.03 \pm .25	3.63	3.82
424	759	80 -104	93.88 \pm .14	3.93	4.19
425	289	82 -106	92.43 \pm .23	3.93	4.25
432	35	85 -101	94.79 \pm .61	3.61	3.81
433	1937	80 -108	94.44 \pm .09	3.85	4.08
434	4335	73 -109	93.20 \pm .26	4.00	4.29
435	794	76 -109	92.15 \pm .13	3.78	4.10

TABLE XVI (Cont'd)

HIP GIRTH (Cont'd)

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
442	134	85 - 103	94.70 \pm .33	3.86	4.08
443	2733	77 - 109	93.69 \pm .08	3.95	4.22
444	3699	78 - 108	92.58 \pm .07	3.70	3.99
445	229	84 - 101	91.76 \pm .22	3.36	3.66
452	125	85 - 109	94.86 \pm .36	4.06	4.28
453	1129	82 - 104	93.65 \pm .11	3.79	4.05
454	357	80 - 104	93.25 \pm .20	3.70	3.97
462	60	89 - 106	96.47 \pm .47	3.65	3.78
463	100	82 - 103	94.75 \pm .41	4.12	4.35
523	229	87 - 108	98.21 \pm .26	3.87	3.94
524	92	90 - 104	96.92 \pm .38	3.60	3.71
532	409	80 - 110	98.15 \pm .21	4.30	4.38
533	1620	84 - 115	97.68 \pm .10	4.05	4.15
534	324	87 - 110	96.64 \pm .22	3.99	4.13
542	1020	80 - 111	98.32 \pm .13	4.16	4.23
543	1820	79 - 110	97.21 \pm .10	4.20	4.32
544	126	88 - 105	96.26 \pm .24	3.57	3.71
551, 552	315	86 - 107	97.44 \pm .23	4.16	4.27
553	166	88 - 108	97.20 \pm .31	4.00	4.12
561-563, 571, 572	25	93 - 111	99.85 \pm .86	4.30	4.31
613, 622-624	62	91 - 109	102.27 \pm .49	3.88	3.79
631	60	88 - 112	103.92 \pm .64	4.96	4.77
632	394	88 - 114	102.42 \pm .22	4.39	4.29
633	140	90 - 111	101.84 \pm .35	4.17	4.09
641	230	91 - 118	105.18 \pm .30	4.60	4.37
642	633	88 - 119	102.88 \pm .16	4.60	4.47
643	80	92 - 112	101.76 \pm .45	4.03	3.96
651	92	94 - 112	103.54 \pm .36	3.44	3.32
652	82	96 - 114	103.49 \pm .40	3.63	3.51
711, 712, 721, 722	19	101 - 116	109.66 \pm .95	4.16	3.79
731, 732	76	99 - 127	111.06 \pm .80	7.01	6.31
741, 751	83	100 - 120	108.90 \pm .61	5.53	5.08

THE METRIC FEATURES OF SEPARATE BODY BUILD GROUPS
AS ENTITIES AND THEIR COMPARISON

I. THIN, NON-MUSCULAR, ELONGATE

115, 116, 117; 125, 126, 127; 135, 136, 137;
215, 216, 217; 225; 226; 227

The group of body types thus designated includes four categories of builds so infrequent in this series that they have been lumped, without reference to the 3rd component value. The constants of these grouped series are of no great value because of variations of the 3rd component and because of the small size of the subgroups. There are also included three sizable subgroups of body types: 225, 226, 227, of which the constants can be calculated individually.

The most meager and miserable physiques appear in the 115's, 116's, and 117's, of which there are only 41 individuals. Nearly all of their breadth diameters are at the minimum, but their average stature is very high.

The subgroups with 1 in the first and 2 or 3 in the 2nd component have a stronger skeletal framework, are on the average shorter and heavier, and tend to exceed the 11-'s in most diameter and girths, but they still consist of very thin men.

The subgroup 135, 136, 137 is the best muscled of this total group and considerably the oldest in mean age (26.90 years). This small group of 26 men is excessively lean, but probably fairly strong.

The small combined subgroup 215, 216, 217 is heavier and taller than either of the preceding, but appears slightly narrower in the shoulders, wider in the pelvic region and with bigger waist and hip girths, but smaller chest girth. This is a physically inferior type, distinguished for its inferiority even in a total group of poor physiques.

The 225's, 226's and 227's naturally show an increase of length dimensions in that order. The 225's are the shortest of all types studied in the complete group I and slightly the heaviest. In the whole assortment of Thin, non-muscular, elongate the 225 and the 135, 136, 137 subgroups are the best set up and probably the most efficient physically.

The Thin, non-muscular elongate group is greatly in excess among Privates, markedly deficient in Officers and Non-coms. Most excesses are in AAF and ASF. In AAF its excess is especially in Ground! In AGF it is notably deficient in the Infantry. In military specialty it shows a great excess in Communications, in

Administration and Technology; it is most deficient in Engineering.

It seems probable that the subgroups 115, 116, 117 and 215, 216, 217, should not be accepted for any military duty involving physical exertion.

TABLE XVII

I Thin, non-muscular, elongate

115,116,117

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	41	19 - 46	23.35 ± .88	5.65	24.20
Weight	41	106 -145	124.52 ±1.37	8.76	7.04
Stature	41	168 -189	179.38 ± .69	4.44	2.48
Torso Length	34	55 - 64	59.04 ± .34	1.97	3.34
Bideltoid	41	37 - 47	42.45 ± .31	2.00	4.77
Chest Breadth	34	22 - 29	25.89 ± .26	1.53	5.91
Chest Depth	34	16 - 23	19.36 ± .29	1.70	8.78
Bi-iliac	34	24 - 30	27.92 ± .24	1.40	5.01
Leg Length	41	81 - 94	87.86 ± .43	2.74	3.12
Arm Length	41	74 - 87	79.91 ± .45	2.89	3.62
Cervicale	41	144 -162	154.33 ± .64	4.10	2.66
Chest Girth	41	74 - 91	83.04 ± .59	3.76	4.53
Waist Girth	41	59 - 81	67.43 ± .63	4.05	6.01
Hip Girth	38	77 - 92	85.34 ± .61	3.20	3.75

TABLE XVIII

I Thin, non-muscular, elongate

125,126,127

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	67	19 - 41	24.15 ± .60	4.90	20.29
Weight	67	103 -158	125.11 ±1.34	11.00	8.79
Stature	67	166 -191	177.48 ± .71	5.84	3.29
Torso Length	52	52 - 64	58.68 ± .40	2.89	4.93
Bideltoid	67	38 - 46	43.00 ± .22	1.80	4.19
Chest Breadth	52	23 - 29	26.91 ± .21	1.51	5.61
Chest Depth	52	15 - 29	20.35 ± .37	2.68	13.17
Bi-iliac	52	18 - 30	27.24 ± .34	2.42	8.88
Leg Length	67	76 - 96	86.90 ± .55	4.49	5.17
Arm Length	67	67 - 87	79.37 ± .44	3.62	4.56
Cervicale	65	141 -166	152.30 ± .66	5.29	3.47
Chest Girth	67	73 - 99	85.15 ± .55	4.50	5.28
Waist Girth	67	61 - 79	67.72 ± .46	3.73	5.51
Hip Girth	67	79 - 93	85.90 ± .84	3.08	3.59

TABLE XIX

I Thin, non-muscular, elongate

135,136,137

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	26	19 - 38	26.90±1.06	5.40	20.07
Weight	26	108 -134	125.49±1.67	8.51	6.78
Stature	26	167 -186	175.33±1.02	5.20	2.97
Terse Length	21	55 - 64	59.69± .51	2.35	3.94
Bidelteid	26	40 - 49	43.26± .38	1.92	4.44
Chest Breadth	21	24 - 28	26.50± .28	1.27	4.79
Chest Depth	21	17 - 21	19.68± .29	1.34	6.81
Bi-iliac	21	25 - 30	27.69± .32	1.47	5.31
Leg Length	26	77 - 91	84.91± .66	3.35	3.95
Arm Length	26	73 - 85	78.22± .56	2.87	3.67
Cervicale	25	141 -160	150.09±1.00	4.98	3.32
Chest Girth	26	74 - 92	85.83± .79	4.03	4.70
Waist Girth	26	61 - 76	67.91± .63	3.21	4.73
Hip Girth	26	79 - 89	85.41± .67	2.71	3.17

TABLE XX

I Thin, non-muscular, elongate

215,216,217

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	97	17 - 36	22.70± .43	4.20	18.50
Weight	98	104 -170	130.94±1.32	13.05	9.97
Stature	98	167 -197	178.84± .63	6.28	3.51
Terse Length	70	47 - 65	58.72± .37	3.07	5.23
Bidelteid	98	38 - 47	42.67± .20	2.01	4.71
Chest Breadth	70	21 - 35	26.82± .25	2.05	7.64
Chest Depth	70	15 - 24	19.54± .21	1.76	9.01
Bi-iliac	70	23 - 38	28.15± .25	2.09	7.42
Leg Length	97	81 - 99	88.49± .43	4.24	4.79
Arm Length	98	74 - 94	80.49± .36	3.58	4.48
Cervicale	94	141 -171	154.41± .65	6.29	4.07
Chest Girth	98	74 - 95	84.74± .45	4.41	5.20
Waist Girth	97	58 - 85	70.29± .45	4.39	6.25
Hip Girth	94	73 - 95	86.74± .38	3.68	4.24

TABLE XXI

I Thin, non-muscular, elongate

225

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	497	17 - 43	22.80 \pm .19	4.25	18.72
Weight	496	104 -178	131.95 \pm .54	12.10	9.17
Stature	496	160 -193	174.15 \pm .24	5.43	3.12
Torso Length	386	49 - 75	58.30 \pm .15	2.91	4.99
Bideltoid	493	30 - 49	43.23 \pm .09	2.06	4.77
Chest Breadth	385	22 - 44	26.95 \pm .10	1.90	7.05
Chest Depth	385	15 - 31	19.60 \pm .10	1.87	9.54
Bi-iliac	385	21 - 37	28.03 \pm .09	1.84	6.56
Leg Length	495	74 - 99	84.87 \pm .18	4.00	4.71
Arm Length	493	67 - 88	77.91 \pm .15	3.28	4.21
Cervicale	480	134 -166	149.57 \pm .24	5.32	3.56
Chest Girth	396	74 - 96	85.78 \pm .17	3.89	4.53
Waist Girth	494	59 - 92	70.62 \pm .18	3.89	5.51
Hip Girth	495	77 -100	87.55 \pm .17	3.70	4.23

TABLE XXII

I Thin, non-muscular, elongate

226

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	521	17 - 38	23.00 \pm .18	4.10	17.83
Weight	519	100 -166	131.84 \pm .52	11.95	9.06
Stature	519	162 -196	179.13 \pm .24	5.58	3.12
Torso Length	395	50 - 75	59.44 \pm .14	2.79	4.69
Bideltoid	517	34 - 49	43.14 \pm .09	1.97	4.57
Chest Breadth	393	19 - 48	26.79 \pm .11	2.25	8.40
Chest Depth	393	14 - 29	19.50 \pm .10	1.89	9.69
Bi-iliac	394	21 - 34	28.17 \pm .09	1.75	6.21
Leg Length	519	76 - 99	87.77 \pm .17	3.97	4.52
Arm Length	519	66 - 90	79.53 \pm .15	3.39	4.26
Cervicale	500	138 -178	154.12 \pm .24	5.45	3.54
Chest Girth	514	73 - 95	85.28 \pm .18	4.03	4.73
Waist Girth	519	54 - 89	69.77 \pm .17	3.98	5.70
Hip Girth	518	75 - 98	87.23 \pm .16	3.62	4.15

TABLE XXI

I Thin, non-muscular, elongate

225

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	497	17 - 43	22.80 \pm .19	4.25	18.72
Weight	496	104 -178	131.95 \pm .54	12.10	9.17
Stature	496	160 -193	174.15 \pm .24	5.43	3.12
Torso Length	386	49 - 75	58.30 \pm .15	2.91	4.99
Bideltoid	493	30 - 49	43.23 \pm .09	2.06	4.77
Chest Breadth	385	22 - 44	26.95 \pm .10	1.90	7.05
Chest Depth	385	15 - 31	19.60 \pm .10	1.87	9.54
Bi-iliac	385	21 - 37	28.03 \pm .09	1.84	6.56
Leg Length	495	74 - 99	84.87 \pm .18	4.00	4.71
Arm Length	493	67 - 88	77.91 \pm .15	3.28	4.21
Cervicale	480	134 -166	149.57 \pm .24	5.32	3.56
Chest Girth	396	74 - 96	85.78 \pm .17	3.89	4.53
Waist Girth	494	59 - 92	70.62 \pm .18	3.89	5.51
Hip Girth	495	77 -100	87.55 \pm .17	3.70	4.23

TABLE XXII

I Thin, non-muscular, elongate

226

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	521	17 - 38	23.00 \pm .18	4.10	17.83
Weight	519	100 -166	131.84 \pm .52	11.95	9.06
Stature	519	162 -196	179.13 \pm .24	5.58	3.12
Torso Length	395	50 - 75	59.44 \pm .14	2.79	4.69
Bideltoid	517	34 - 49	43.14 \pm .09	1.97	4.57
Chest Breadth	393	19 - 48	26.79 \pm .11	2.25	8.40
Chest Depth	393	14 - 29	19.50 \pm .10	1.89	9.69
Bi-iliac	394	21 - 34	28.17 \pm .09	1.75	6.21
Leg Length	519	76 - 99	87.77 \pm .17	3.97	4.52
Arm Length	519	66 - 90	79.53 \pm .15	3.39	4.26
Cervicale	500	138 -178	154.12 \pm .24	5.45	3.54
Chest Girth	514	73 - 95	85.28 \pm .18	4.03	4.73
Waist Girth	519	54 - 89	69.77 \pm .17	3.98	5.70
Hip Girth	518	75 - 98	87.23 \pm .16	3.62	4.15

TABLE XXIII

I Thin, non-muscular, elongate

227

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	44	19 - 31	22.75 \pm .48	3.20	14.07
Weight	44	117 - 151	130.67 \pm 1.43	9.50	7.27
Stature	44	176 - 193	184.13 \pm .71	4.74	2.57
Torso Length	34	51 - 65	60.60 \pm .54	3.16	5.21
Bideltoid	44	38 - 48	42.88 \pm .29	1.93	4.50
Chest Breadth	34	23 - 30	26.63 \pm .29	1.67	6.27
Chest Depth	34	16 - 23	19.36 \pm .27	1.55	8.01
Bi-iliac	34	26 - 31	28.51 \pm .23	1.36	4.77
Leg Length	44	83 - 98	90.88 \pm .56	3.71	4.08
Arm Length	44	75 - 86	81.09 \pm .38	2.50	3.08
Cervicale	42	149 - 166	158.47 \pm .38	4.44	2.80
Chest Girth	44	77 - 91	84.38 \pm .50	3.31	3.92
Waist Girth	44	63 - 76	68.34 \pm .42	2.81	4.11
Hip Girth	44	80 - 91	86.63 \pm .44	2.93	3.38

II. THIN, SUBMEDIUM MUSCULATURE, ELONGATE

234; 235; 236

This group of three body types, constituting about 2.27 per cent of the White series, consists of spare and moderate to markedly elongate builds, moderately well supported in the 2nd component (bony framework and muscle). The 235's are fairly numerous (479 men), 236's far less so, and the 234's are rare because they are on the short side. Although stature and most vertical dimensions increase with the third component in this group, weights, horizontal diameters, and girths remain virtually constant. The 234's being shortest, are somewhat "stockier" in build, but these three types generally consist of medium to moderately tall men, fairly light in weight. They probably represent one of the strongest groups physically of the 3rd component (elongate) dominants.

This group decreases in occurrence from Privates through Non-coms to Officers. It is strongly in excess in the AAP, and deficient in AGF. Within the AAP, its excesses are much stronger in Ground than in Flight. In the AGF these types are especially deficient in the Infantry. In military specialty this type is piled up in Technology, Administration, and also in excess in Communications and Medical. It is most deficient in Engineering.

TABLE XXIV

II Thin, sub-med. musc., elongate

234

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	72	17 - 34	23.25 ± .47	3.95	16.99
Weight	72	108 - 157	132.03 ± 1.38	11.70	8.86
Stature	72	157 - 177	168.39 ± .58	4.88	2.90
Torso Length	62	49 - 62	56.93 ± .39	3.10	5.45
Bideltoid	72	39 - 47	43.69 ± .22	1.87	4.28
Chest Breadth	62	23 - 30	27.08 ± .19	1.53	5.65
Chest Depth	62	16 - 22	19.79 ± .20	1.55	7.83
Bi-iliac	62	23 - 31	27.66 ± .24	1.94	7.01
Leg Length	72	71 - 88	81.35 ± .41	3.52	4.33
Arm Length	72	69 - 82	75.64 ± .37	3.13	4.14
Cervicale	69	134 - 153	144.35 ± .57	4.75	3.29
Chest Girth	75	76 - 100	87.44 ± .53	4.45	5.09
Waist Girth	72	63 - 86	70.60 ± .44	3.72	5.27
Hip Girth	72	80 - 97	87.99 ± .45	3.85	4.38

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TABLE XXV

II Thin, sub-med. musc., elongate

235

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	480	17 - 39	24.20 ± .21	4.60	19.01
Weight	479	101 - 176	132.90 ± .54	11.85	8.92
Stature	479	160 - 189	173.98 ± .25	5.43	3.12
Torso Length	365	49 - 67	58.43 ± .14	2.69	4.60
Bideltoid	477	38 - 49	43.69 ± .09	1.97	4.51
Chest Breadth	365	20 - 31	27.13 ± .09	1.63	6.01
Chest Depth	366	11 - 29	19.91 ± .09	1.63	8.19
Bi-iliac	364	21 - 37	27.94 ± .10	1.83	6.55
Leg Length	477	73 - 98	84.42 ± .18	3.99	4.73
Arm Length	478	67 - 96	77.70 ± .17	3.62	4.66
Cervicale	458	134 - 167	149.07 ± .24	5.17	3.47
Chest Girth	479	75 - 102	87.09 ± .19	4.23	4.86
Waist Girth	478	60 - 95	70.69 ± .19	4.12	5.83
Hip Girth	476	72 - 97	87.34 ± .15	3.37	3.86

TABLE XXVI

II Thin, sub-med.musc., elongate

236

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	187	17 - 37	24.00 ± .33	4.55	18.96
Weight	187	109 - 162	132.86 ± .75	10.30	7.75
Stature	187	167 - 193	178.98 ± .34	4.65	2.60
Torso Length	135	52 - 65	59.52 ± .21	2.45	4.12
Bideltoid	187	40 - 49	43.76 ± .13	1.80	4.11
Chest Breadth	134	24 - 31	27.02 ± .13	1.46	5.40
Chest Depth	134	14 - 29	19.68 ± .15	1.74	8.84
Bi-iliac	134	18 - 32	27.77 ± .16	1.86	6.70
Leg Length	187	71 - 96	84.55 ± .26	3.62	4.17
Arm Length	186	64 - 87	76.87 ± .22	3.04	3.85
Cervicale	180	133 - 165	153.61 ± .34	4.57	2.98
Chest Girth	187	78 - 98	86.42 ± .26	3.61	4.18
Waist Girth	186	56 - 92	69.31 ± .30	4.07	5.87
Hip Girth	186	79 - 99	87.37 ± .25	3.42	3.91

III. THIN, MEDIUM MUSCULATURE

244; 245

This group, .69 per cent of the White series, consists of two rare body types, both thin but with a 2nd component rated at 4, which makes them strongly predominant in musculature over fat so that they look very powerful. However, they are, on the average, light in weight (244 - 133.87 lbs, 245 - 137.33 lbs). The 244's are short and the 245's rather on the tall side. Because of their 2nd component development these types are heavier and superior in breadths, depths, and girths to the 234's and 235's with which they may be compared. The 244's and 245's tend toward longer torsos and shorter legs in conformity with their higher mesomorphy. They are also nearly two years older on the average than the 23-'s.

Thin men of medium musculature are greatly in excess in Officers and deficient in Privates. They are also markedly in excess in AAF, notably in Flight (about four times expectation). In the AGF they are found in proportionate numbers. In military specialty they are piled up in Communication and very low in Technical.

TABLE XXVII

III Thin, med. musculature

244

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	67	19 - 34	25.35 ±	.58	4.75	18.74
Weight	67	107 - 164	133.87 ±	1.67	13.65	9.45
Stature	67	154 - 180	168.61 ±	.68	5.54	3.29
Torso Length	52	50 - 62	57.30 ±	.35	2.52	4.40
Bideltoid	67	37 - 48	44.08 ±	.24	1.99	4.51
Chest Breadth	51	24 - 30	27.51 ±	.22	1.54	5.60
Chest Depth	52	17 - 23	20.10 ±	.18	1.32	6.57
Bi-iliac	52	23 - 32	27.57 ±	.24	1.76	6.38
Leg Length	67	70 - 89	80.17 ±	.45	3.68	4.59
Arm Length	67	67 - 87	75.32 ±	.42	3.45	4.58
Cervicale	61	130 - 156	144.35 ±	.70	5.45	3.78
Chest Girth	66	82 - 97	88.74 ±	.40	3.28	3.70
Waist Girth	66	63 - 88	71.34 ±	.53	4.27	5.99
Hip Girth	65	79 - 97	87.90 ±	.57	4.60	5.23

TABLE XXVIII

III Thin, med. musculature

245

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	115	18 - 43	25.90 ±	.50	5.35	20.66
Weight	115	101 - 167	137.33 ±	1.09	11.70	8.52
Stature	115	160 - 190	175.30 ±	.48	5.20	2.97
Torso Length	91	49 - 64	59.00 ±	.29	2.78	4.71
Bideltoid	115	39 - 50	44.35 ±	.18	1.89	4.26
Chest Breadth	91	23 - 32	27.57 ±	.16	1.67	6.06
Chest Depth	91	17 - 29	20.10 ±	.15	1.47	7.31
Bi-iliac	91	23 - 37	28.18 ±	.21	2.05	7.27
Leg Length	114	73 - 93	84.41 ±	.33	3.57	4.23
Arm Length	114	68 - 87	77.77 ±	.30	3.23	4.15
Cervicale	111	135 - 162	149.89 ±	.48	5.05	3.37
Chest Girth	115	76 - 101	88.77 ±	.39	4.15	4.68
Waist Girth	115	60 - 96	71.02 ±	.39	4.22	5.94
Hip Girth	116	76 - 99	88.15 ±	.34	3.63	4.12

IV. SUBMEDIUM, NON-MUSCULAR, MEDIUM AND ELONGATE

314-317; 324; 325; 326

This is a group of body types of submedium fleshiness, moderately to markedly elongate and definitely weak in the 2nd (bone and muscle) component. It is a small group, 5.45 per cent of the White series, and inferior as respects physical strength. It contains many individuals of somewhat feminine body contours. The mean ages of the group are close to the minimum of the series. The different body types represented in this group tend to be relatively lightweight men and tall (with the exception of the 324's who are medium in stature). This last named type is somewhat broader and tends to excel the others of the group in girths. Numerically the 325's are the largest subgroup (1434 individuals). In general, these types are tall and narrow, but rounded in body contours. Their shoulders are narrow, chests narrow and deep, waists constricted, hips and thighs somewhat full. It is doubtful if any other group in the Army series is further removed from standard conceptions of what soldiers' physiques should be.

The Submedium, non-muscular, medium and elongate class is markedly in excess in Privates (perhaps because of low mean age and military incapacity). It is slightly deficient in the Non-coms and markedly so in Officers. In military unit it is in excess in the AAF and deficient in the basic units. Within the AAF it shows a slight excess in Flight, larger in Ground. It is surprising that these physical ineffectives were put into the Air Force. In military specialty this class of body builds is hugely in excess in Administration and Communications, slightly in excess in Gunnery (strangely!) and deficient in all other specialties.

TABLE XXIX

IV Sub-med., non-musc., med. & elongate

314 - 317

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	133	17 - 35	22.25 ±	.33	3.80	17.08
Weight	133	103 - 173	137.90 ±	1.14	13.10	9.50
Stature	133	160 - 195	178.24 ±	.54	6.25	3.51
Torso Length	88	46 - 65	58.14 ±	.32	3.00	5.16
Bideltoid	132	25 - 72	43.21 ±	.31	3.54	8.19
Chest Breadth	89	21 - 39	26.94 ±	.22	2.05	7.61
Chest Depth	89	17 - 29	20.06 ±	.20	1.85	9.22
Bi-iliac	89	20 - 33	28.53 ±	.23	2.15	7.54
Leg Length	132	71 - 98	88.06 ±	.35	4.05	4.60
Arm Length	131	69 - 88	79.99 ±	.31	3.59	4.49
Cervicale	130	134 - 169	153.68 ±	.54	6.20	4.03
Chest Girth	132	75 - 98	86.47 ±	.35	4.05	4.68
Waist Girth	133	61 - 94	73.07 ±	.43	4.93	6.75
Hip Girth	129	80 - 100	88.98 ±	.34	3.87	4.35

TABLE XXX

IV Sub-med., non-musc., med. & elongate

324

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	481	17 - 38	23.25 ±	.20	4.35	18.71
Weight	481	112 - 174	141.92 ±	.55	12.15	8.56
Stature	481	158 - 186	172.13 ±	.23	4.98	2.89
Torso Length	364	45 - 64	57.71 ±	.14	2.64	4.57
Bideltoid	478	37 - 57	44.01 ±	.09	2.02	4.59
Chest Breadth	362	22 - 59	27.36 ±	.13	2.52	9.21
Chest Depth	363	16 - 30	20.36 ±	.09	1.66	8.15
Bi-iliac	363	21 - 36	28.29 ±	.10	1.84	6.50
Leg Length	479	73 - 94	83.90 ±	.17	3.75	4.47
Arm Length	478	67 - 88	77.57 ±	.14	3.15	4.06
Cervicale	462	133 - 160	147.88 ±	.23	5.01	3.39
Chest Girth	480	77 - 99	88.41 ±	.19	4.09	4.55
Waist Girth	479	60 - 90	74.57 ±	.18	3.91	5.24
Hip Girth	479	81 - 101	90.57 ±	.16	3.44	3.80

TABLE XXXI

IV Sub-med., non-musc., med. & elongate

325

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1436	17 - 47	22.90 ± .11	4.30	18.78
Weight	1434	104 - 200	140.44 ± .34	12.80	9.12
Stature	1434	159 - 199	176.77 ± .15	5.50	3.11
Torso Length	1017	49 - 67	58.64 ± .09	2.84	4.84
Bideltoid	1430	37 - 59	43.81 ± .05	2.02	4.61
Chest Breadth	1019	20 - 45	27.12 ± .05	1.74	6.42
Chest Depth	1016	15 - 32	20.15 ± .06	1.76	8.73
Bi-iliac	1018	20 - 38	28.40 ± .06	1.85	6.51
Leg Length	1431	68 - 100	86.49 ± .10	3.80	4.39
Arm Length	1427	67 - 99	78.91 ± .09	3.50	4.44
Cervicale	1372	135 - 171	151.98 ± .15	5.30	3.49
Chest Girth	1427	73 - 105	87.56 ± .11	4.09	4.67
Waist Girth	1429	61 - 96	73.00 ± .11	3.99	5.47
Hip Girth	1427	76 - 103	89.51 ± .10	3.67	4.10

TABLE XXXII

IV Sub-med., non-musc., med. & elongate

326

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	287	17 - 36	22.50 ± .22	3.65	16.22
Weight	286	108 - 180	138.21 ± .77	12.95	9.37
Stature	286	168 - 196	181.13 ± .34	5.76	3.18
Torso Length	211	49 - 69	59.72 ± .21	3.04	5.09
Bideltoid	285	38 - 49	43.43 ± .11	1.83	4.21
Chest Breadth	212	20 - 36	26.95 ± .12	1.73	6.42
Chest Depth	211	15 - 28	19.99 ± .12	1.79	8.95
Bi-iliac	212	19 - 33	28.43 ± .14	1.98	6.96
Leg Length	286	76 - 99	88.95 ± .23	3.94	4.43
Arm Length	286	70 - 93	80.03 ± .21	3.57	4.46
Cervicale	269	142 - 171	155.82 ± .34	5.60	3.59
Chest Girth	282	74 - 99	86.37 ± .24	3.98	4.61
Waist Girth	285	63 - 98	71.98 ± .26	4.39	6.10
Hip Girth	284	78 - 101	88.93 ± .22	3.73	4.19

V. SUBMEDIUM, SUBMEDIUM MUSCULATURE

333; 334; 335; 336

This group of men (14.70% of the White series) has a balance in the fat and muscle components and tends usually toward elongation (except in the case of the numerically rare 333's). Individuals in this subgroup are, generally speaking, well muscled for their weights, although the bulk of musculature is graded at 3 (submedium), along with the submedium fatty deposits. In age they tend to average close to 24 years. The group is composed predominantly of 334's and 335's, both of which are light combat and general utility types especially found in the AGF and AAF.

The small unit of 333's included in this group consists of short rather slender men who, however, weigh more on the average and have greater breadths and girths than the more elongate body builds of the group. The 336's, also rare (211), are extremely tall and probably less efficient physically than other members of the group. The 335's are numerically among the largest of the body type subgroups of the Army, (3084 individuals). They average 141.75 lbs in weight and 176.76 cm in stature. They are fairly tall, lean men of moderate musculature.

These body types are slightly deficient in representation among Officers, a little in excess in Privates and Non-coms. They are in excess in AAF and AGF, deficient in ASF. In the AAF they are in excess in Ground; in the AGF they are in excess in the Infantry. The greatest frequency in military function is in Administration and next in Gunnery, Technical, and Communications. They are very rare in Supply and Engineering.

TABLE XXXIII

V Sub-med., sub-med. musculature

333

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	114	18 - 46	23.60	± .42	4.45	18.86
Weight	113	117 - 170	143.92	± 1.12	11.95	8.30
Stature	113	156 - 176	166.61	± .42	4.49	2.69
Torso Length	95	48 - 63	56.97	± .28	2.72	4.77
Bideltoid	113	40 - 48	44.71	± .18	1.88	4.20
Chest Breadth	96	20 - 31	27.42	± .18	1.73	6.31
Chest Depth	95	17 - 29	20.40	± .16	1.59	7.79
Bi-iliac	96	23 - 36	27.90	± .20	1.94	6.95
Leg Length	113	72 - 87	80.00	± .31	3.29	4.11
Arm Length	112	68 - 85	75.44	± .28	2.93	3.88
Cervicale	109	133 - 154	143.34	± .43	4.52	3.15
Chest Girth	113	82 - 102	89.91	± .33	3.55	3.95
Waist Girth	111	66 - 88	74.50	± .33	3.52	4.72
Hip Girth	112	82 - 97	90.41	± .32	3.34	3.69

TABLE XXXIV

V Sub-med., sub-med. musculature

334

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	2781	17 - 41	23.60	± .08	4.35	18.43
Weight	2770	100 - 191	142.40	± .24	12.50	8.78
Stature	2770	150 - 191	171.97	± .10	5.26	3.06
Torso Length	2208	48 - 69	57.77	± .06	2.76	4.78
Bideltoid	2757	38 - 51	44.40	± .03	1.80	4.05
Chest Breadth	2216	18 - 45	27.54	± .04	1.81	6.57
Chest Depth	2202	16 - 30	20.33	± .03	1.53	7.53
Bi-iliac	2206	20 - 39	28.13	± .04	1.86	6.61
Leg Length	2766	70 - 98	83.06	± .07	3.66	4.41
Arm Length	2759	65 - 89	76.97	± .06	3.18	4.13
Cervicale	2653	129 - 166	147.54	± .10	5.17	3.50
Chest Girth	2760	68 - 104	89.22	± .08	3.79	4.47
Waist Girth	2768	60 - 96	73.93	± .07	3.88	5.25
Hip Girth	2767	67 - 100	90.03	± .07	3.79	4.21

TABLE XXIV

V Sub-med., sub-med. musculature

335

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S. D.</u>	<u>C.V.</u>
Age	3084	17 - 52	23.60 ± .08	4.55	19.28
Weight	3084	105 - 188	141.75 ± .24	13.10	9.24
Stature	3084	158 - 196	176.75 ± .10	5.61	3.17
Torso Length	2381	45 - 69	59.07 ± .06	2.82	4.77
Bideltoid	3068	38 - 54	44.18 ± .03	1.85	4.19
Chest Breadth	2375	20 - 45	27.46 ± .04	1.87	6.81
Chest Depth	2370	15 - 31	20.22 ± .03	1.66	8.21
Bi-iliac	2376	20 - 39	28.36 ± .04	1.87	6.59
Leg Length	3077	70 - 99	85.77 ± .07	3.94	4.59
Arm Length	3070	64 - 90	78.51 ± .06	3.35	4.27
Cervicale	2957	134 - 172	151.65 ± .10	5.42	3.57
Chest Girth	3079	65 - 103	88.28 ± .07	4.10	4.64
Waist Girth	3084	53 - 98	72.83 ± .07	4.07	5.59
Hip Girth	3071	75 - 104	89.54 ± .07	3.74	4.18

TABLE XXVI

W Sub-med., sub-med. musculature

336

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S. D.</u>	<u>C.V.</u>
Age	212	17 - 34	23.75 ± .30	4.40	18.53
Weight	211	102 - 186	140.69 ± .88	12.80	9.10
Stature	211	163 - 198	181.78 ± .38	5.57	3.06
Torso Length	151	50 - 65	60.19 ± .23	2.84	4.72
Bideltoid	211	36 - 48	44.01 ± .13	1.83	4.16
Chest Breadth	152	21 - 31	27.30 ± .13	1.63	5.97
Chest Depth	152	16 - 29	20.22 ± .14	1.67	8.26
Bi-iliac	150	22 - 33	23.50 ± .16	1.90	6.67
Leg Length	211	78 - 99	88.50 ± .28	4.01	4.53
Arm Length	210	70 - 89	80.07 ± .24	3.42	4.27
Cervicale	197	137 - 171	155.95 ± .39	5.52	3.54
Chest Girth	210	72 - 99	87.58 ± .29	4.16	4.75
Waist Girth	209	61 - 84	71.92 ± .25	3.58	4.98
Hip Girth	210	78 - 99	89.36 ± .23	3.40	3.80

VI. SUBMEDIUM, MEDIUM MUSCULATURE

343; 344; 345

There are three body types in this rather spare, moderately muscled group and they comprise 6.86 per cent of the total White series. They average in age from 24.20 to 24.75 years. The 344's are by far the most numerous. As usual, the shortest body type of the group tends to show slightly greater breadths and girths and the tallest the least, with the 344's in the middle. These men are excellent combat types, but not heavily built. The 345's include many of the men who would be called "lean, tall, rangy, but athletic." They are nearly two inches taller on the average than the 344's. Average weights of the 34-'s range only from 143.31 to 144.15 lbs, but there are in each of the types some small and some large men.

The group occurs most frequently in Privates, less so in Non-coms, and is deficient in Officers. It is in excess in the AGF and deficient in other military units. In the AGF it is in moderate excess in the Combat Infantry. Curiously, its greatest excess in military function is in Medical (11.13% as against 6.86% in the total White series). It is speculated that these lean, well-muscled men may be stretcher-bearers, since, in general, medical units are not characterized by strength in the leaner, more muscular types. Other functional excesses of this group are: Technical, Gunnery, Intelligence, Reconnaissance and Security. The strongest deficiency is in Transportation.

TABLE XXXVII

VI Sub-med., med. musculature

343

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	197	17 - 38	24.65 ± .36	5.10	20.69
Weight	197	110 - 184	143.31 ± .95	13.30	9.28
Stature	197	152 - 181	166.77 ± .37	5.23	3.14
Torso Length	156	49 - 62	56.61 ± .21	2.58	4.56
Bideltoid	194	40 - 51	44.99 ± .14	1.93	4.29
Chest Breadth	157	24 - 45	27.97 ± .19	2.42	8.65
Chest Depth	157	17 - 29	20.81 ± .15	1.84	8.84
Bi-iliac	156	19 - 31	27.79 ± .13	1.60	5.76
Leg Length	194	69 - 89	79.37 ± .27	3.72	4.69
Arm Length	195	66 - 82	74.96 ± .22	3.13	4.18
Cervical	189	126 - 160	142.59 ± .38	5.21	3.65
Chest Girth	194	77 - 104	91.16 ± .31	4.38	4.80
Waist Girth	194	65 - 84	74.50 ± .25	3.54	4.75
Hip Girth	192	81 - 100	90.39 ± .25	3.44	3.81

TABLE XXXVIII

VI Sub-med., med. musculature

344

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1647	17 - 56	24.20 ± .11	4.65	19.21
Weight	1646	107 - 196	143.70 ± .31	12.70	8.84
Stature	1646	156 - 189	171.85 ± .13	5.34	3.11
Torso Length	1235	45 - 65	58.13 ± .08	2.81	4.83
Bideltoid	1637	38 - 51	44.88 ± .05	1.91	4.26
Chest Breadth	1232	20 - 36	27.86 ± .05	1.67	5.99
Chest Depth	1231	16 - 30	20.51 ± .04	1.50	7.13
Bi-iliac	1233	20 - 39	28.21 ± .06	1.89	6.70
Leg Length	1642	70 - 95	82.42 ± .09	3.74	4.53
Arm Length	1645	65 - 88	76.46 ± .08	3.19	4.17
Cervicale	1546	130 - 162	147.11 ± .14	5.21	3.54
Chest Girth	1640	78 - 106	90.33 ± .10	4.20	4.65
Waist Girth	1641	64 - 97	73.71 ± .10	3.85	5.22
Hip Girth	1632	79 - 103	90.15 ± .09	3.54	3.93

TABLE XXXIX

VI Sub-med., med. musculature

345

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	643	17 - 40	24.75 ± .18	4.65	18.79
Weight	640	108 - 186	144.15 ± .52	13.25	9.19
Stature	640	160 - 192	177.05 ± .21	5.38	3.04
Torso Length	470	50 - 70	59.51 ± .14	2.99	5.02
Bideltoid	637	34 - 50	44.70 ± .08	1.97	4.41
Chest Breadth	469	23 - 39	27.83 ± .09	1.85	6.65
Chest Depth	470	16 - 32	20.47 ± .08	1.81	8.84
Bi-iliac	468	22 - 39	28.32 ± .09	1.85	6.53
Leg Length	639	72 - 96	85.25 ± .15	3.68	4.32
Arm Length	637	68 - 89	78.14 ± .13	3.21	4.11
Cervicale	610	135 - 166	151.57 ± .21	5.20	3.43
Chest Girth	639	79 - 102	89.78 ± .16	3.92	4.37
Waist Girth	638	60 - 89	72.73 ± .15	3.79	5.21
Hip Girth	638	78 - 98	89.78 ± .14	3.49	3.89

VII. SUBMEDIUM, MUSCULAR

352, 353, 354; 253, 254, 255; 263, 264, 265; 273;
362, 363, 364

This is the group (2.38% of White series) which contains the types of body build with great musculature and a minimum of fatty tissue covering the muscles. It includes a diversity of body types (as above), none of them numerous. The 354's are commonest and include only 391 men out of roughly 40,000. The types of this group have higher mean ages than most of the preceding groups. The average age ranges from 24.90 to 25.50 years. These "mesomorphs" are not heavyweights (average weight 138.63-150.56 lbs), and are not tall (taken as a series). They are men who, according to modern standards are somewhat below average stature, but they are very broad-shouldered, big chested, and generally powerful. They are, of course, first rate combat material for the Army.

These lean powerful fellows are in excess among Officers and greatly deficient in Non-coms. They are in some excess in the AGF and deficient in the ASF. In the AGF they are piled up in the Infantry. Their greatest comparative frequency in military specialty is Gunnery. They are least common in Medical and Intelligence.

Included in this general group is a lumped subgroup of thin (2 in 1st component) excessively muscular men - 5, 6, or 7 in the 2nd component. These fellows (only 43 in all) are lighter than the 34-'s and 35-'s. They average only 138.63 lbs and are "shortish" (170.15 cm). They are "picture athletes" in their great muscular relief with minimal fatty covering on their broad shoulders, big chests, slim waists and hips.

There is also another subgroup of combined 362's, 363's, and 364's. These men are bulkier than the 35-'s and 26-'s and 27-'s. They average 150.56 lbs and are shortish.

TABLE XL

VII Sub-med., muscular

352-353

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	185	17 - 39	25.35 \pm .37	5.05	19.92
Weight	185	117 - 186	145.86 \pm .93	12.70	8.71
Stature	185	152 - 183	166.81 \pm .38	5.12	3.07
Torso Length	140	46 - 62	56.87 \pm .23	2.77	4.87
Bideltoid	183	40 - 55	45.70 \pm .15	2.09	4.57
Chest Breadth	137	24 - 32	28.45 \pm .14	1.64	5.76
Chest Depth	139	18 - 30	21.09 \pm .15	1.73	8.20
Bi-iliac	138	22 - 32	27.89 \pm .16	1.87	6.70
Leg Length	185	67 - 90	78.89 \pm .37	5.03	6.38
Arm Length	183	66 - 83	74.42 \pm .25	3.38	4.54
Cervicale	173	128 - 158	142.48 \pm .39	5.11	3.59
Chest Girth	183	82 - 108	92.48 \pm .33	4.48	4.84
Waist Girth	184	66 - 84	74.81 \pm .27	3.61	4.83
Hip Girth	182	82 - 98	90.76 \pm .25	3.40	3.75

TABLE XLI

VII Sub-med., muscular

354

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	391	17 - 38	24.90 \pm .23	4.55	18.27
Weight	391	115 - 199	147.64 \pm .62	12.30	8.33
Stature	391	158 - 192	172.55 \pm .26	5.14	2.98
Torso Length	283	50 - 67	58.31 \pm .17	2.85	4.89
Bideltoid	390	40 - 52	45.48 \pm .09	1.83	4.02
Chest Breadth	283	21 - 33	28.23 \pm .10	1.72	6.09
Chest Depth	283	17 - 29	20.79 \pm .09	1.53	7.36
Bi-iliac	284	22 - 33	28.23 \pm .11	1.82	6.45
Leg Length	389	71 - 96	82.66 \pm .19	3.69	4.46
Arm Length	391	68 - 85	76.41 \pm .15	2.97	3.89
Cervicale	365	134 - 166	147.47 \pm .26	5.00	3.39
Chest Girth	390	78 - 107	91.72 \pm .22	4.25	4.63
Waist Girth	387	64 - 88	74.08 \pm .19	3.66	4.94
Hip Girth	386	82 - 104	90.70 \pm .17	3.40	3.75

TABLE XLII

VII Sub-med., muscular

253-255; 263-265; 273

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	43	19 - 34	25.50 ± .70	4.60	18.04
Weight	43	114 - 168	138.63 ± 2.06	13.53	9.76
Stature	43	155 - 184	170.15 ± 1.14	7.45	4.38
Torso Length	27	50 - 64	57.71 ± .61	3.19	5.53
Bideltoid	43	41 - 49	45.03 ± .33	2.14	4.75
Chest Breadth	27	24 - 32	28.26 ± .43	2.21	7.82
Chest Depth	27	17 - 27	20.86 ± .35	1.84	8.82
Bi-iliac	27	22 - 30	27.04 ± .34	1.75	6.47
Leg Length	43	73 - 90	80.19 ± .73	4.77	5.95
Arm Length	43	68 - 83	75.17 ± .56	3.67	4.88
Cervicale	41	132 - 158	144.77 ± 1.13	7.23	4.99
Chest Girth	43	81 - 101	89.94 ± .71	4.67	5.19
Waist Girth	43	65 - 92	72.15 ± .82	5.36	7.43
Hip Girth	54	81 - 96	88.86 ± .51	3.74	4.21

TABLE XLIII

VII Sub-med., muscular

362-363-364

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	47	19 - 34	24.95 ± .62	4.25	17.03
Weight	44	130 - 179	150.56 ± 1.70	11.25	7.47
Stature	44	157 - 179	169.06 ± .80	5.29	3.13
Torso Length	32	51 - 63	58.08 ± .51	2.86	4.92
Bideltoid	44	41 - 50	46.04 ± .31	2.04	4.43
Chest Breadth	32	25 - 36	28.73 ± .34	1.90	6.61
Chest Depth	32	17 - 25	21.14 ± .28	1.58	7.47
Bi-iliac	32	24 - 32	28.51 ± .33	1.85	6.49
Leg Length	43	72 - 88	80.24 ± .65	4.23	5.27
Arm Length	43	68 - 80	75.24 ± .49	3.20	4.25
Cervicale	41	134 - 154	144.50 ± .75	4.78	3.31
Chest Girth	44	83 - 104	92.54 ± .62	4.13	4.46
Waist Girth	43	67 - 81	74.26 ± .54	3.56	4.79
Hip Girth	47	84 - 98	91.36 ± .48	3.28	3.59

VIII. MEDIUM PLUMP, NON-MUSCULAR

413-414-415; 423; 424; 425

This is a group (3.05% of White series) of the physically weakest soldiers, averaging in age close to 23 years. These men are medium plump, but without adequate support in musculature and bony framework. With increasing elongation these weaklings become still weaker. They include a high proportion of gyandromorphic (somewhat feminized) types. They tend to be somewhat heavy, exceeding 150 lbs on the average, and range from medium to tall according to the value of the 3rd component. Shoulders (bideitoid) are narrow and the chests rather narrow, but not particularly shallow. Pelves are on the broad side, waist girths and hip girths are large, chest girths considerable. The extremities of these weak types show elongation.

This class is deficient among Officers and Non-coms, in excess among Privates. It is strongly in excess in the AAF. Its military specialty excesses are interesting. These are in Intelligence and Administration. Marked deficiencies are in Maintenance, Supply, and Communications.

It should be noted that men of these gyandromorphic body types, while not physically equipped for combat duty, are, generally speaking, intelligent and competent in some other fields important and indispensable to the operation of an army.

TABLE XLIV

VIII Med. plump, non-muscular

413-414-415

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	57	18 - 39	23.65 \pm .69	5.20	21.99
Weight	56	117 - 184	149.78 \pm 1.99	14.90	9.95
Stature	56	164 - 189	176.50 \pm .72	5.40	3.06
Torso Length	37	50 - 64	58.40 \pm .48	2.93	5.02
Bideltoid	56	39 - 48	43.79 \pm .28	2.09	4.77
Chest Breadth	38	23 - 30	27.00 \pm .27	1.68	6.22
Chest Depth	38	17 - 24	20.63 \pm .30	1.86	9.02
Bi-iliac	38	19 - 31	29.03 \pm .33	2.06	7.10
Leg Length	56	80 - 94	86.82 \pm .44	3.26	3.75
Arm Length	56	72 - 86	79.24 \pm .38	2.86	3.61
Cervicale	55	139 - 177	152.72 \pm .85	6.30	4.13
Chest Girth	56	76 - 99	89.13 \pm .68	5.07	5.69
Waist Girth	56	64 - 87	77.08 \pm .64	4.78	6.20
Hip Girth	55	83 - 104	93.41 \pm .56	4.19	4.49

TABLE XLV

VIII Med. plump, non-muscular

423

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	209	17 - 43	23.05 \pm .33	4.70	20.39
Weight	210	122 - 195	158.52 \pm .92	13.35	8.42
Stature	210	159 - 183	171.87 \pm .33	4.81	2.80
Torso Length	154	50 - 66	57.77 \pm .24	2.94	5.09
Bideltoid	208	41 - 50	45.57 \pm .13	1.89	4.15
Chest Breadth	151	24 - 31	28.01 \pm .13	1.55	5.53
Chest Depth	153	17 - 25	21.31 \pm .11	1.42	6.66
Bi-iliac	153	24 - 33	28.96 \pm .15	1.88	6.49
Leg Length	210	72 - 94	83.27 \pm .23	3.36	4.04
Arm Length	209	68 - 86	77.40 \pm .22	3.19	4.12
Cervicale	202	135 - 158	147.96 \pm .32	4.52	3.05
Chest Girth	209	79 - 104	92.64 \pm .29	4.23	4.57
Waist Girth	210	71 - 94	80.18 \pm .31	4.48	5.59
Hip Girth	208	83 - 103	95.03 \pm .25	3.63	3.82

TABLE XLVI

VIII Med. plump, non-muscular

424

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	761	17 - 47	23.35 ± .18	4.85	20.77
Weight	761	101 - 224	154.45 ± .52	14.45	9.35
Stature	761	155 - 195	175.81 ± .02	5.62	3.39
Torso Length	533	48 - 66	58.69 ± .12	2.77	4.72
Bideltoid	757	39 - 54	44.86 ± .07	1.84	4.10
Chest Breadth	535	20 - 32	27.76 ± .07	1.64	5.91
Chest Depth	533	16 - 25	20.90 ± .07	1.55	7.42
Bi-iliac	534	21 - 39	28.92 ± .08	1.96	6.78
Leg Length	760	74 - 97	85.55 ± .14	3.88	4.54
Arm Length	758	68 - 89	78.53 ± .12	3.31	4.21
Cervicale	726	130 - 168	151.32 ± .20	5.46	3.61
Chest Girth	754	74 - 107	90.67 ± .16	4.28	4.72
Waist Girth	759	65 - 100	78.04 ± .18	4.87	6.24
Hip Girth	759	80 - 104	93.88 ± .14	3.93	4.19

TABLE XLVII

VIII Med. plump, non-muscular

425

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	288	17 - 40	23.28 ± .26	4.45	19.18
Weight	290	108 - 203	150.10 ± .91	15.55	10.36
Stature	290	161 - 198	179.87 ± .37	6.24	3.47
Torso Length	187	52 - 67	59.56 ± .21	2.92	4.90
Bideltoid	289	38 - 50	44.26 ± .12	2.03	4.59
Chest Breadth	185	24 - 32	27.49 ± .11	1.56	5.67
Chest Depth	188	15 - 31	20.69 ± .13	1.73	8.36
Bi-iliac	189	20 - 33	28.84 ± .15	2.11	7.32
Leg Length	289	76 - 101	88.06 ± .26	4.39	4.99
Arm Length	288	70 - 90	79.86 ± .22	3.80	4.76
Cervicale	270	137 - 173	154.68 ± .37	6.04	3.90
Chest Girth	290	78 - 100	89.07 ± .25	4.33	4.86
Waist Girth	290	60 - 90	75.71 ± .26	4.37	5.77
Hip Girth	289	82 - 106	92.43 ± .23	3.93	4.25

IX. MEDIUM PLUMP, SUBMEDIUM MUSCULATURE

432; 433; 434; 435

Although this class includes but four body types, it comprises the greatest aggregate (17.70% of White series). These individuals average in age about 24 years. Within the group the 434 body type includes some 4355 individuals. The men of this class are a little more plump than muscular - perhaps a little over-nourished - but they represent seemingly the modal type of the American of military age and requisite fitness for service. There is within the group a considerable variation of weight and stature according to the value of the 3rd component, from the rather short, heavy 432's to the decidedly tall and somewhat lighter 435's. The 432 type is very rare, however. The great 434 type averages 154 lbs and is over 175 cm in stature. In general, these men are well proportioned and probably moderately powerful and enduring.

This is a general utility type found in all branches of the services, but slightly deficient in AGP and AAF and somewhat in excess in ASF. It is in excess in Privates and deficient among Officers. In military specialty it is over-represented in Engineering, Medical, Intelligence, Transportation, and Technical. Its marked deficiencies are in Communication and Supply.

It should be emphasized, however, that this modal body build of American males of military age is apparently capable of practically any type of army duty.

TABLE XLVIII

IX Med. plump, sub-med. musculature

432

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	35	19 - 38	24.20 \pm .80	4.75	19.63
Weight	35	128 -185	158.23 \pm 2.38	14.07	8.89
Stature	35	154 -175	165.16 \pm .87	5.15	3.12
Terse Length	29	49 - 61	57.07 \pm .56	3.02	5.29
Bidelteid	35	41 - 52	45.56 \pm .34	2.04	4.48
Chest Breadth	25	24 - 29	27.45 \pm .24	1.20	4.37
Chest Depth	25	19 - 23	21.25 \pm .25	1.27	5.98
Bi-iliac	25	26 - 31	28.05 \pm .26	1.30	4.63
Leg Length	35	72 - 86	79.11 \pm .59	3.48	4.40
Arm Length	34	67 - 79	74.54 \pm .51	2.97	3.98
Cervicale	34	131 -156	142.71 \pm .97	5.66	3.97
Chest Girth	35	84 -103	92.85 \pm .82	4.84	5.21
Waist Girth	35	71 - 87	79.45 \pm .78	4.64	5.84
Hip Girth	35	85 -101	94.79 \pm .61	3.61	3.81

TABLE XLIX

IX Med. plump, sub-med. musculature

433

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1944	17 - 54	24.35 \pm .11	4.90	20.12
Weight	1944	113 -208	157.35 \pm .03	14.05	8.93
Stature	1944	152 -188	171.04 \pm .12	5.27	3.08
Terse Length	1487	46 - 71	57.69 \pm .07	2.79	4.84
Bidelteid	1935	38 - 53	45.80 \pm .04	1.59	3.48
Chest Breadth	1486	19 - 49	28.39 \pm .05	1.94	6.83
Chest Depth	1482	17 - 34	21.23 \pm .04	1.55	7.30
Bi-iliac	1486	26 - 39	28.73 \pm .05	1.90	6.61
Leg Length	1942	70 - 96	82.30 \pm .09	3.91	4.75
Arm Length	1936	66 - 87	76.70 \pm .07	3.18	4.15
Cervicale	1859	130 -154	146.94 \pm .12	5.10	3.47
Chest Girth	1935	77 -108	93.05 \pm .10	4.18	4.49
Waist Girth	1939	66 - 98	79.61 \pm .10	4.36	5.48
Hip Girth	1937	80 -108	94.44 \pm .09	3.85	4.08

TABLE L

IX Med. plump, sub-med. musculature

434

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	4356	17 - 51	24.10 \pm .07	4.80	19.92
Weight	4355	109 - 211	154.09 \pm .22	14.35	9.31
Stature	4355	157 - 195	175.19 \pm .08	5.54	3.16
Torso Length	3183	47 - 79	58.65 \pm .05	2.86	4.88
Bideltoid	4339	34 - 55	45.18 \pm .03	1.91	4.23
Chest Breadth	3177	18 - 39	28.02 \pm .03	1.72	6.14
Chest Depth	3176	17 - 32	20.97 \pm .03	1.63	7.77
Bi-iliac	3182	18 - 41	28.84 \pm .03	1.94	6.73
Leg Length	4345	70 - 99	84.72 \pm .06	3.80	4.49
Arm Length	4333	66 - 89	78.08 \pm .05	3.26	4.18
Cervicale	4119	132 - 171	150.55 \pm .08	5.32	3.53
Chest Girth	4340	75 - 107	91.37 \pm .06	4.28	4.68
Waist Girth	4336	61 - 99	77.51 \pm .07	4.44	5.73
Hip Girth	4335	73 - 109	93.20 \pm .06	4.00	4.29

TABLE LI

IX Med. plump, sub-med. musculature

435

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	803	17 - 37	23.55 \pm .16	4.55	19.32
Weight	803	115 - 198	151.20 \pm .48	13.60	8.97
Stature	803	163 - 195	179.77 \pm .19	5.45	3.03
Torso Length	563	49 - 67	59.72 \pm .12	2.93	4.91
Bideltoid	796	39 - 57	44.84 \pm .07	1.98	4.42
Chest Breadth	561	20 - 38	27.80 \pm .07	1.69	6.08
Chest Depth	560	17 - 31	20.72 \pm .07	1.61	7.77
Bi-iliac	560	21 - 34	28.94 \pm .08	1.79	6.19
Leg Length	802	75 - 100	87.43 \pm .14	4.07	4.66
Arm Length	796	70 - 92	79.48 \pm .12	3.31	4.16
Cervicale	752	136 - 169	154.39 \pm .20	5.37	3.48
Chest Girth	799	77 - 105	90.18 \pm .15	4.14	4.59
Waist Girth	801	65 - 98	75.87 \pm .16	4.41	5.81
Hip Girth	794	76 - 109	92.15 \pm .13	3.78	4.10

X. BALANCED, SHORT TO MEDIUM (16.52%)

442; 443; 444 and

XI. BALANCED TALL (.81%) 445

The Balanced, short to medium class is numerically inferior only to the Medium plump, submedium musculature group. The former comprise about 16.52 per cent of the White series, the latter 17.70 per cent. The Balanced, short to medium group ranges in mean age from 24.30 to 24.85 years and is thus somewhat older than the 43- group. However, the members of the former are not inferior to the above mentioned group in any physical attribute. They are very well built men averaging from 153 to 171 lbs, with weight varying inversely with the value of the 3rd component and heights similarly ranging on the average from about 166 cm to about 174.4 cm. These are the men in whom fatty development and bone muscle are in balance at the modal value of the whole series, but their third component varies.

The Balanced, tall (445) men, about one year younger than the 442's, 443's, and 444's, have been separated from the Balanced, short to medium, because of the feeling that they are a physically weaker group, owing to their overattenuation or elongation. They average somewhat lighter than Balanced, short to medium and are really tall (av. 179.43 cm). They are, accordingly, somewhat inferior to the above mentioned group in breadths, diameters, and girths.

A reference to the last report issued by the Harvard group will show in detail how different the Balanced, tall type is to the Balanced, short to medium in its army functions and various sociological correlates. The Balanced, short to medium is a combat type par excellence. The Balanced, tall is not.

Balanced, short to medium men are slightly in excess in Privates and slightly deficient among Officers. They are very definitely in excess in the ACF, notably in the Infantry. Their leading military specialty is Gunnery. This subgroup is most rarely found in Medical, Administration, Technical, and Communications.

On the other hand, the Balanced, tall (a very small class) is slightly in excess in the AAF and within that unit is disproportionately represented both in Ground and in Flight. It is definitely deficient in the Infantry.

This Balanced, tall type is particularly in excess in the military specialty of Administration, also to a lesser degree in Intelligence and Transportation. It is lowest in Engineering, Medical, and Supply. Although this type has a good balance of fat and musculature, its elongation apparently removes it from the physical body build groupings best fitted for combat. It is one of the best educated types and one especially of Old American and British lineage.

TABLE LII

X Balanced, short to medium

442

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	132	17 - 43	24.85 ± .45		5.20	20.93
Weight	137	124 - 207	161.46 ± .13		15.40	9.54
Stature	133	151 - 175	165.89 ± .43		5.00	3.01
Torso Length	116	49 - 64	57.00 ± .24		2.57	4.51
Bideltoid	135	42 - 52	46.86 ± .16		1.91	4.11
Chest Breadth	115	25 - 33	28.73 ± .15		1.57	5.46
Chest Depth	115	18 - 24	21.47 ± .12		1.29	6.01
Bi-iliac	116	25 - 33	28.63 ± .16		1.75	6.11
Leg Length	135	69 - 87	78.78 ± .34		3.99	5.06
Arm Length	137	65 - 86	74.92 ± .30		3.54	4.73
Cervicale	134	127 - 158	142.89 ± .51		5.87	4.11
Chest Girth	136	78 - 112	95.45 ± .41		4.77	5.00
Waist Girth	136	70 - 103	80.99 ± .41		4.76	5.88
Hip Girth	134	85 - 103	94.70 ± .33		3.86	4.08

TABLE LIII

X Balanced, short to medium

443

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
Age	2738	17 - 52	24.70 ± .09		4.80	19.43
Weight	2737	117 - 214	156.20 ± .28		14.60	9.35
Stature	2737	153 - 190	170.24 ± .10		5.38	3.16
Torso Length	2071	47 - 68	57.72 ± .06		2.71	4.70
Bideltoid	2722	39 - 53	45.83 ± .04		2.02	4.41
Chest Breadth	2080	20 - 48	28.48 ± .04		2.04	7.16
Chest Depth	2074	17 - 33	21.29 ± .03		1.58	7.42
Bi-iliac	2082	18 - 38	28.53 ± .04		1.91	6.69
Leg Length	2725	69 - 95	81.30 ± .07		3.76	4.62
Arm Length	2726	64 - 96	76.01 ± .06		3.32	4.37
Cervicale	2605	123 - 164	146.00 ± .11		5.28	3.62
Chest Girth	2723	80 - 112	93.21 ± .08		4.32	4.63
Waist Girth	2729	60 - 98	78.29 ± .08		4.30	5.49
Hip Girth	2733	77 - 109	93.69 ± .08		3.95	4.22

TABLE LIV

X Balanced, short to medium

444

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	3125	17 - 50	24.30 \pm .08	4.70	19.34
Weight	3633	114 - 215	153.37 \pm .23	13.70	8.94
Stature	3632	156 - 196	174.41 \pm .09	5.40	3.10
Torso Length	2628	48 - 67	58.75 \pm .05	2.65	4.51
Bideltoid	3617	39 - 56	45.42 \pm .03	1.94	4.27
Chest Breadth	2624	21 - 39	28.30 \pm .04	1.77	6.25
Chest Depth	2628	15 - 32	20.99 \pm .03	1.53	7.29
Bi-iliac	2632	20 - 37	28.65 \pm .04	1.89	6.60
Leg Length	3624	71 - 98	83.81 \pm .06	3.79	4.52
Arm Length	3616	65 - 90	77.36 \pm .05	3.20	4.14
Cervicale	3409	130 - 168	149.57 \pm .09	5.28	3.53
Chest Girth	3624	72 - 110	91.95 \pm .07	4.18	4.55
Waist Girth	3620	62 - 93	76.60 \pm .07	4.09	5.34
Hip Girth	3699	78 - 108	92.58 \pm .07	3.70	3.99

TABLE LV

XI Balanced, tall

445

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	235	17 - 36	23.15 \pm .27	4.20	18.14
Weight	236	127 - 186	152.23 \pm .81	12.40	8.15
Stature	240	164 - 193	179.43 \pm .32	5.08	2.83
Torso Length	174	50 - 66	59.78 \pm .24	3.12	5.22
Bideltoid	239	33 - 50	45.11 \pm .13	1.95	4.32
Chest Breadth	174	23 - 38	28.06 \pm .12	1.63	5.81
Chest Depth	174	16 - 29	20.77 \pm .12	1.56	7.51
Bi-iliac	174	22 - 37	28.62 \pm .14	1.83	6.39
Leg Length	239	74 - 98	86.42 \pm .23	3.55	4.11
Arm Length	239	70 - 83	78.88 \pm .19	2.93	3.71
Cervicale	225	134 - 164	153.28 \pm .33	4.97	3.24
Chest Girth	239	79 - 103	90.60 \pm .25	3.91	4.32
Waist Girth	238	63 - 85	75.03 \pm .23	3.60	4.80
Hip Girth	229	84 - 101	91.76 \pm .22	3.36	3.66

XII. MEDIUM FAT, MUSCULAR

452, 453, 454; 462, 463

This group of five body types represents the largest group of heavy muscle men, aggregating about 5.55 per cent of the White series and averaging from 24.90 to 25.85 years of age. It is to be noted that, on the average, none of these types is tall and that two of them (452, 462) are decidedly short. The weights are well above means for the series, ranging from 157.26 lbs in the 453's to 167.98 lbs in the 462's. The 46-'s exceed the 45-'s. The most numerous of the group are the 453's, aggregating some 1130 men, averaging 157.26 lbs in weight and 170.21 cm in stature. This body type occurs in more than 3.22 per cent of the White soldiers. The 46-'s markedly exceed the 45-'s in bideltoid and chest breadth, only slightly in chest depth - hardly at all in bi-iliac. The chest girths of the 46-'s are also considerably superior, but the waist girths not so much so. The 46-'s also have greater hip girths.

Altogether, these types constitute the most impressive group of moderately fleshed and very muscular physiques. They are more common in Privates than in Officers and are in marked excess in the AGF and deficient in the AAF and ASF. In military function this group has the highest excess in the Infantry of any type. Other excesses are in Maintenance and Gunnery.

Note that this group tends to be excessively of recent foreign descent, especially Near Eastern, Mediterranean, Southern Slavic, also Balto-Ugric, Central Slavic, Russian.

TABLE LVI

XII Medium fat, muscular

452

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	127	18 - 38	25.55 ± .44	4.95	19.37
Weight	127	128 - 226	160.33 ± 1.34	15.10	9.42
Stature	127	154 - 183	165.81 ± .44	4.95	2.99
Torso Length	104	51 - 64	56.95 ± .24	2.49	4.37
Bideltoid	127	41 - 53	46.52 ± .19	2.11	4.54
Chest Breadth	104	24 - 34	29.00 ± .16	1.66	5.72
Chest Depth	104	18 - 23	21.51 ± .11	1.14	5.30
Bi-iliac	104	24 - 33	28.63 ± .18	1.84	6.43
Leg Length	126	70 - 89	78.12 ± .30	3.41	4.37
Arm Length	125	64 - 85	74.15 ± .28	3.17	4.28
Cervicale	122	131 - 157	141.98 ± .45	4.95	3.49
Chest Girth	124	83 - 107	95.18 ± .37	4.07	4.28
Waist Girth	126	70 - 96	79.66 ± .42	4.75	5.96
Hip Girth	125	85 - 109	94.86 ± .36	4.06	4.28

TABLE LVII

XII Medium fat, muscular

453

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1129	17 - 39	24.90 ± .14	4.70	18.88
Weight	1130	110 - 213	157.26 ± .43	14.60	9.28
Stature	1130	152 - 189	170.21 ± .17	5.58	3.28
Torso Length	840	48 - 67	57.73 ± .10	2.82	4.88
Bideltoid	1128	40 - 54	46.24 ± .06	1.97	4.26
Chest Breadth	840	20 - 37	28.67 ± .06	1.76	6.14
Chest Depth	833	17 - 26	21.32 ± .05	1.38	6.47
Bi-iliac	841	22 - 39	28.53 ± .07	1.98	6.94
Leg Length	1126	67 - 95	80.96 ± .12	3.86	4.77
Arm Length	1129	65 - 88	75.63 ± .09	3.19	4.22
Cervicale	1060	124 - 166	145.64 ± .17	5.40	3.71
Chest Girth	1119	81 - 112	94.25 ± .13	4.36	4.63
Waist Girth	1125	66 - 97	78.08 ± .13	4.30	5.51
Hip Girth	1129	82 - 104	93.65 ± .11	3.79	4.05

TABLE LVIII

XII Medium fat, muscular

462

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	60	19-35	25.85 \pm .59	4.60	17.79
Weight	60	138-204	167.98 \pm 2.07	16.05	9.55
Stature	60	155-178	167.47 \pm .71	5.48	3.27
Torso Length	47	51-62	57.13 \pm .36	2.44	4.27
Bideltoid	59	44-54	48.08 \pm .30	2.30	4.78
Chest Breadth	47	26-35	29.73 \pm .29	1.96	6.59
Chest Depth	47	19-28	21.92 \pm .26	1.76	8.03
Bi-iliac	48	22-32	28.49 \pm .27	1.89	6.63
Leg Length	60	72-86	79.35 \pm .51	3.96	5.00
Arm Length	60	67-82	74.37 \pm .42	3.26	4.38
Cervicale	54	131-155	143.84 \pm .70	5.13	3.57
Chest Girth	59	87-107	97.76 \pm .63	4.84	4.95
Waist Girth	59	71-88	80.67 \pm .49	3.78	4.69
Hip Girth	60	89-106	96.47 \pm .47	3.65	3.78

TABLE LIX

XII Medium fat, muscular

463

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	99	19-43	24.90 \pm .49	4.90	19.68
Weight	99	127-197	164.60 \pm 1.47	14.65	8.90
Stature	99	158-182	171.38 \pm .56	5.59	3.26
Torso Length	72	50-66	58.17 \pm .39	3.29	5.66
Bideltoid	97	42-52	47.23 \pm .22	2.14	4.53
Chest Breadth	72	21-33	29.48 \pm .24	2.01	2.79
Chest Depth	72	18-29	21.89 \pm .22	1.83	8.36
Bi-iliac	71	23-34	28.91 \pm .21	1.79	6.19
Leg Length	97	71-88	80.79 \pm .37	3.65	4.52
Arm Length	96	66-82	75.47 \pm .32	3.16	4.19
Cervicale	89	133-156	146.61 \pm .57	5.40	3.68
Chest Girth	99	82-105	96.44 \pm .47	4.72	4.89
Waist Girth	98	71-87	78.35 \pm .37	3.64	4.65
Hip Girth	100	82-103	94.75 \pm .41	4.12	4.35

XIII. FAT, NON MUSCULAR AND SUBMEDIUM MUSCULATURE

523, 524; 532, 533, 534

The 52-'s and 53-'s are fat or pudgy men with rather weak underlying framework and musculature. The 53-'s average a year or more older than the 52-'s. They constitute about 6.56 per cent of the White series. The largest body type numerically of the group is 533 (1620 men), which is about 3.95 per cent of the White series. The other four body types of the group are not numerous. The group shows considerable weight variation in each body type. Average weights range from 166.83 lbs to 170.57 lbs. Stature means vary from 168.89 to 178.59 cm. These fat men are, as types, taller than the mesomorphs (and component dominants). They have averages of bicep and chest breadth that are not much different from those of the Medium fat, muscular types, if anything slightly smaller. Their chests are definitely deeper, but their chest girths are hardly larger than those of the group adduced for comparison. Waist girths and hip girths are definitely larger than those of the preceding group. These fat, non-muscular and submedium muscled men have rather poor physiques.

This group is found excessively among Officers and in the ASF. Its deficiencies in the AGF and AAF are notable. The largest excesses of these types in military specialty are in Medical, Supply, and Communications. The types of this group are definitely Service rather than Combat.

The 523's and 524's are gynandromorphic subgroups and probably rather different in sociological and military aptitudes from the 53-'s. They tend to have smaller bicep, chest and waist girths, and bigger hip girths. They are no lighter in weight, but are structurally weaker than the 53-'s.

TABLE LX

XIII Fat, non-musc. & sub-med.musculature

523

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	230	17-56	24.75± .38	5.75	23.23
Weight	230	125-232	170.57± .94	14.30	8.38
Stature	230	154-192	174.80± .35	5.25	3.00
Torso Length	158	52-68	58.46± .24	2.98	5.10
Bideltoid	227	41-53	46.25± .12	1.86	4.02
Chest Breadth	159	23-38	29.15± .13	1.67	5.73
Chest Depth	158	19-29	22.12± .13	1.66	7.23
Bi-iliac	158	22-35	30.23± .16	2.00	6.62
Leg Length	230	73-98	84.67± .25	3.75	4.43
Arm Length	227	67-89	78.12± .21	3.22	4.12
Cervicale	214	130-167	150.66± .34	4.91	3.26
Chest Girth	230	79-109	95.52± .27	4.09	4.28
Waist Girth	230	67-101	84.10± .33	4.98	5.92
Hip Girth	229	87-108	98.21± .26	3.87	3.94

TABLE LXI

XIII Fat, non-musc. & sub-med.musculature

524

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	93	18-36	23.75± .47	4.55	19.16
Weight	96	133-201	166.85± 1.37	13.45	8.06
Stature	96	165-191	178.07± .55	5.25	2.95
Torso Length	56	54-64	59.63± .30	2.23	3.74
Bideltoid	96	40-50	45.65± .19	1.84	4.03
Chest Breadth	57	20-30	27.91± .27	2.03	7.27
Chest Depth	57	13-25	21.64± .25	1.85	8.55
Bi-iliac	57	22-34	29.85± .30	2.25	7.54
Leg Length	96	79-97	87.20± .42	4.08	4.68
Arm Length	96	70-86	79.64± .31	3.06	3.84
Cervicale	91	141-166	154.41± .54	5.17	3.35
Chest Girth	96	84-103	93.67± .41	4.03	4.30
Waist Girth	96	72-92	82.29± .49	4.82	5.86
Hip Girth	92	90-104	96.92± .38	3.60	3.71

TABLE LXII

XIII Fat, non-musc. & sub-med. musculature

532

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	410	18-53	25.85 ± .26	5.35	20.70
Weight	410	129-213	170.52 ± .78	15.90	9.32
Stature	410	154-181	168.89 ± .26	5.35	3.17
Torso Length	312	45-67	57.26 ± .18	3.12	5.45
Bideltoid	407	37-56	46.95 ± .11	2.18	4.64
Chest Breadth	314	19-34	28.98 ± .10	1.78	6.14
Chest Depth	314	17-29	22.32 ± .09	1.56	6.99
Bi-iliac	313	20-39	29.47 ± .12	2.21	7.50
Leg Length	407	69-91	80.61 ± .18	3.64	4.52
Arm Length	408	67-89	75.64 ± .16	3.16	4.18
Cervicale	387	130-163	145.35 ± .26	5.15	3.54
Chest Girth	404	85-109	97.03 ± .21	4.31	4.44
Waist Girth	408	73-103	85.75 ± .26	5.24	6.11
Hip Girth	409	80-110	98.15 ± .21	4.30	4.38

TABLE LXIII

XIII Fat, non-musc. & sub-med. musculature

533

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1621	17-54	25.85 ± .14	5.55	21.47
Weight	1620	121-225	170.13 ± .39	15.65	9.20
Stature	1621	155-192	174.08 ± .14	5.56	3.19
Torso Length	1166	48-69	58.80 ± .09	2.83	4.81
Bideltoid	1614	39-52	46.70 ± .05	1.98	4.24
Chest Breadth	1164	20-34	28.95 ± .05	1.79	6.16
Chest Depth	1159	17-32	22.12 ± .05	1.65	7.46
Bi-iliac	1168	20-39	29.71 ± .06	2.11	7.10
Leg Length	1618	70-99	83.57 ± .10	4.03	4.82
Arm Length	1612	63-89	77.51 ± .08	3.41	4.40
Cervicale	1540	131-168	149.74 ± .14	5.50	3.67
Chest Girth	1616	79-115	96.04 ± .11	4.42	4.60
Waist Girth	1617	70-102	83.88 ± .12	4.93	5.88
Hip Girth	1620	84-115	97.68 ± .10	4.05	4.15

TABLE LXIV

XIII. Fat, non-musc. & sub-med. musculature

534

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	326	18-52	26.05 \pm .30	5.35	20.54
Weight	332	125-213	167.25 \pm .87	15.90	9.51
Stature	332	162-194	178.68 \pm .32	5.83	3.26
Torso Length	242	53-67	59.80 \pm .17	2.70	4.52
Bideltoid	331	35-52	46.23 \pm .12	2.15	4.65
Chest Breadth	244	20-39	28.94 \pm .14	2.16	7.46
Chest Depth	243	14-32	21.92 \pm .13	2.05	9.35
Bi-iliac	243	21-37	29.89 \pm .13	2.09	6.99
Leg Length	332	70-99	86.19 \pm .25	4.64	5.38
Arm Length	332	69-89	79.07 \pm .19	3.52	4.45
Cervicale	322	136-168	153.47 \pm .26	4.61	3.00
Chest Girth	332	80-109	94.50 \pm .25	4.63	4.90
Waist Girth	332	64-97	81.62 \pm .27	4.91	6.02
Hip Girth	324	87-110	96.64 \pm .22	3.99	4.13

XIV. FAT, MEDIUM MUSCULATURE

542, 543, 544

The fat men of medium musculature comprise only three body types, but constitute a numerically large group (c.7.79% of White series). They tend to average in weight much the same as the Fat, non-muscular and submedium, but are above them in mean age. The 54-'s range from 26.05 to 26.70 years in mean age. They do not differ perceptibly in stature from the 52-'s and 53-'s. Bideloid or shoulder breadth is, however, somewhat larger, as is chest breadth. On the other hand, bi-iliac breadths tend to be slightly smaller. These men with better support in the second component than the Fat, non-muscular and sub-medium muscled show tendencies also to have longer torsos and shorter legs and arms. They have bigger chest girths, but about the same waist girths as the class here adduced for comparison, and about the same hip girths.

This class is in excess in Non-coms and Officers as contrasted with Privates. It is in excess in the ASF as compared with the other two units. It is markedly deficient in the Infantry and in Gunnery; in moderate excess in Engineering, Supply, Intelligence, and Transportation.

On the whole, these types of men who are fat, but not excessively so, have their fat supported by a good average amount of musculature. They lack the soft pudginess of the 52-'s and 53-'s and are definitely masculine in build rather than dubiously feminine, as in the case of the 523's and 524's.

TABLE LXV

XIV. Fat, med. musculature

542.					
Measurement	No.	Range	Mean	S.D.	C.V.
Age	1018	17-47	26.70 ± .12	3.85	14.42
Weight	1018	130-227	172.58 ± .49	15.60	9.04
Stature	1018	153-185	169.13 ± .16	5.24	3.10
Torso Length	755	47-68	57.91 ± .10	2.83	4.89
Bideloid	1015	40-55	47.52 ± .06	2.07	4.36
Chest Breadth	755	20-39	29.55 ± .07	1.86	6.29
Chest Depth	755	18-33	22.54 ± .06	1.65	7.32
Bi-iliac	757	20-39	29.62 ± .08	2.08	7.02
Leg Length	1014	67-93	80.00 ± .12	3.78	4.73
Arm Length	1015	65-80	75.36 ± .10	3.57	4.21
Cervicale	965	130-161	145.10 ± .16	5.10	3.51
Chest Girth	1015	73-115	98.12 ± .15	4.84	4.93
Waist Girth	1014	69-102	85.44 ± .16	4.98	5.83
Hip Girth	1020	80-111	98.32 ± .13	4.16	4.23

TABLE LXVI

XIV Fat, med. musculature

543

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	1830	17-49	26.20 \pm .12	5.15	19.16
Weight	1830	124-220	170.01 \pm .36	15.35	9.03
Stature	1830	154-190	173.41 \pm .13	5.42	3.13
Torso Length	1335	46-67	58.88 \pm .03	2.84	4.82
Bideltoid	1818	40-56	47.08 \pm .05	2.00	4.25
Chest Breadth	1334	20-39	29.24 \pm .05	1.80	6.16
Chest Depth	1340	17-35	22.16 \pm .06	2.30	3.79
Bi-iliac	1341	20-39	29.51 \pm .06	2.17	7.35
Leg Length	1827	69-98	82.76 \pm .09	3.85	4.65
Arm Length	1819	65-89	76.97 \pm .08	3.23	4.20
Cervicale	1708	129-164	148.82 \pm .13	5.32	3.57
Chest Girth	1822	79-114	96.47 \pm .10	4.43	4.59
Waist Girth	1827	68-98	83.07 \pm .11	4.79	5.77
Hip Girth	1820	79-110	97.21 \pm .10	4.20	4.32

TABLE LXVII

XIV Fat, med. musculature

544

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	125	17-38	26.05 \pm .51	5.55	22.07
Weight	129	128-221	167.14 \pm 1.30	14.80	8.86
Stature	129	162-195	178.27 \pm .46	5.27	2.96
Torso Length	97	50-65	59.73 \pm .41	4.08	6.83
Bideltoid	129	40-51	46.47 \pm .18	2.05	4.41
Chest Breadth	97	21-38	29.06 \pm .20	1.93	6.64
Chest Depth	97	18-25	21.65 \pm .13	1.27	5.87
Bi-iliac	97	25-33	29.52 \pm .17	1.68	5.69
Leg Length	129	75-95	85.36 \pm .34	3.87	4.53
Arm Length	127	70-88	77.87 \pm .30	3.41	4.38
Cervicale	125	139-171	152.80 \pm .47	5.26	3.44
Chest Girth	129	80-107	95.35 \pm .39	4.47	4.69
Waist Girth	129	67-94	81.08 \pm .38	4.28	5.28
Hip Girth	126	88-105	96.26 \pm .24	3.57	3.71

XV. FAT, MUSCULAR

551, 552; 553; 561-572

This is a very small group consisting of a number of rare body types - all of them rather fat, heavy and apparently very powerful men. They average somewhat heavier than the 54-'s but are approximately the same in stature and are no older. Bi-deltoid diameters are larger, chest diameter about the same as the preceding group. Waist and hip girths are somewhat larger than in the Fat, medium muscular group. The subgroup 561-572 includes 26 men of prodigious muscularity. They are, of course, fat, but their musculature is so great as to dominate their obesity.

The Fat, muscular types are far more common among Officers than among Privates. They are slightly deficient in the AGP and in excess in AAP, Flight. Their military specialties are Supply, Maintenance, and Engineering. They are notably deficient in the Medical service and to a lesser degree in Communications.

TABLE LXVIII

XV Fat, muscular

551-552

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	319	18-43	26.80 ± .29	5.25	19.59
Weight	319	128-214	170.96 ± .92	16.35	9.56
Stature	319	151-183	167.69 ± .33	5.83	3.48
Torso Length	220	47-66	57.56 ± .20	3.02	5.25
Bi-deltoid	318	41-52	47.86 ± .13	2.26	4.72
Chest Breadth	218	25-38	29.94 ± .13	1.96	6.55
Chest Depth	219	19-35	22.72 ± .15	2.24	9.86
Bi-iliac	219	23-36	29.03 ± .13	1.92	6.61
Leg Length	319	68-89	78.76 ± .22	3.85	4.89
Arm Length	319	63-88	74.21 ± .19	3.37	4.54
Cervicale	292	129-159	143.71 ± .32	5.49	3.82
Chest Girth	318	85-112	98.36 ± .27	4.75	4.83
Waist Girth	317	71-99	83.69 ± .29	5.11	6.11
Hip Girth	315	86-107	97.44 ± .23	4.16	4.27

TABLE LXIX

XV Fat, muscular

553

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	168	18-38	26.20 \pm .37	4.75	18.13
Weight	168	135-224	172.11 \pm 1.30	16.80	9.76
Stature	168	158-189	173.47 \pm .45	5.77	3.33
Torso Length	126	49-67	58.78 \pm .29	3.28	5.58
Bideltoid	166	42-56	47.60 \pm .18	2.32	4.87
Chest Breadth	126	20-34	29.40 \pm .17	1.89	6.43
Chest Depth	124	18-26	22.15 \pm .13	1.49	6.73
Bi-iliac	128	24-39	29.72 \pm .18	2.06	6.93
Leg Length	168	73-96	82.41 \pm .30	3.91	4.74
Arm Length	167	67-86	76.65 \pm .27	3.45	4.50
Cervicale	156	131-162	148.37 \pm .47	5.86	3.95
Chest Girth	167	87-108	97.29 \pm .34	4.42	4.54
Waist Girth	167	71-96	82.57 \pm .34	4.41	5.34
Hip Girth	166	88-108	97.20 \pm .31	4.00	4.12

TABLE LXX

XV Fat, muscular

561-572

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	26	19-50	27.10 \pm 1.30	6.60	24.35
Weight	26	159-228	179.87 \pm 3.07	15.65	8.70
Stature	26	156-177	167.91 \pm .88	4.51	2.69
Torso Length	18	55-62	58.17 \pm .43	1.84	3.16
Bideltoid	26	43-55	48.72 \pm .43	2.17	4.45
Chest Breadth	18	29-33	31.12 \pm .27	1.14	3.66
Chest Depth	18	19-25	22.89 \pm .39	1.67	7.30
Bi-iliac	18	27-34	29.95 \pm .48	2.03	6.78
Leg Length	26	68-85	78.10 \pm .73	3.71	4.75
Arm Length	26	68-78	73.87 \pm .51	2.59	3.51
Cervicale	24	132-150	143.95 \pm .79	3.88	2.70
Chest Girth	25	91-112	100.17 \pm 1.05	5.27	5.26
Waist Girth	26	75-102	84.72 \pm 1.04	5.29	6.24
Hip Girth	25	93-111	99.85 \pm .86	4.30	4.31

XVI. VERY FAT, NON-MUSCULAR AND SUBMEDIUM

613-624; 631, 632, 633; 711-722; 731-732

This group (1.78% of White series) varies from very fat in the 6--'s to enormously obese in the 7--'s. None of several body types included is well supported in musculature or apparently endowed with a heavy bony framework. The 6--'s tend to have a modal age of c. 26 years and the 7--'s are definitely younger than the 6--'s. Mean weights range from 186.26 lbs to 194.99 lbs in the 6--'s and from 220.11 lbs to 221.66 lbs in the 7--'s. All of these obese types range from medium to tall. Only one type (631) has a stature below 170 cm. Shoulders are very broad - attaining the high mean of 51.39 cm in the 731-732 subgroup. They exceed in biacromial even the means of the Fat, muscular type. Chest Breadths and depths are similarly high and all of the girths are enormous.

These Very fat, non-muscular types are greatly in excess in Officers, in the AAF (Ground) and in the ASF. In military specialty we find them piled up in Supply, Medical, Intelligence, Technical, and Reconnaissance and Security.

These extremely obese men are frequently advanced in age. They may be of some utility in sedentary administrative military function, but they are of course wholly unfit for any activity involving strenuous physical exertion.

TABLE LXXI

XVI Very fat, non-musc. & sub-med. musculature

613-624

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	62	19-53	25.55 ± .88	6.90	27.00
Weight	63	153-224	186.26 ± 1.86	14.80	7.95
Stature	63	164-191	176.80 ± .69	5.49	3.11
Torso Length	45	52-64	59.16 ± .44	2.96	5.00
Bideltoid	63	43-52	47.91 ± .22	1.77	3.69
Chest Breadth	45	23-34	29.29 ± .30	2.01	6.86
Chest Depth	45	19-27	22.78 ± .26	1.73	7.59
Bi-iliac	45	25-35	31.27 ± .33	2.23	7.13
Leg Length	63	76-95	85.67 ± .46	3.69	4.31
Arm Length	63	71-88	79.05 ± .40	3.21	4.06
Cervicale	60	141-167	152.50 ± .69	5.35	3.51
Chest Girth	62	88-113	99.63 ± .59	4.62	4.64
Waist Girth	63	77-104	90.08 ± .76	6.01	6.67
Hip Girth	62	91-109	102.27 ± .49	3.88	3.79

TABLE LXXII

XVI Very fat, non-musc. & sub-med. musculature

631

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	63	19-62	26.45 ± .81	6.45	24.39
Weight	63	152-235	194.99 ± 2.05	16.30	8.36
Stature	63	157-177	168.96 ± .55	4.40	2.60
Torso Length	43	51-63	57.82 ± .40	2.62	4.53
Bideltoid	62	44-53	49.27 ± .25	1.98	4.02
Chest Breadth	44	24-32	30.45 ± .25	1.69	5.55
Chest Depth	44	20-30	23.93 ± .27	1.81	7.56
Bi-iliac	44	26-36	31.63 ± .32	2.14	6.77
Leg Length	62	72-88	79.95 ± .39	3.05	3.81
Arm Length	62	68-82	75.80 ± .39	3.07	4.05
Cervicale	57	132-154	145.36 ± .61	4.59	3.16
Chest Girth	63	88-115	102.96 ± .63	4.98	4.84
Waist Girth	62	83-115	96.66 ± .85	6.72	6.95
Hip Girth	60	88-112	103.92 ± .64	4.96	4.77

TABLE LXXIII

XVI Very fat, non-musc. & sub-med. musculature

632

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	398	17-43	26.15 ± .26	5.25	20.18
Weight	398	142-243	187.12 ± .85	16.90	9.03
Stature	398	155-187	172.78 ± .27	5.43	3.14
Torso Length	274	49-66	58.63 ± .19	3.11	5.30
Bideltoid	396	42-56	48.13 ± .10	2.01	4.18
Chest Breadth	275	21-46	29.99 ± .13	2.23	7.44
Chest Depth	274	19-37	23.50 ± .12	1.97	8.38
Bi-iliac	273	24-36	30.85 ± .14	2.30	7.46
Leg Length	397	70-93	82.40 ± .20	4.03	4.89
Arm Length	396	65-86	76.88 ± .16	3.25	4.23
Cervicale	372	133-163	148.91 ± .27	5.29	3.55
Chest Girth	395	88-125	100.86 ± .25	5.01	4.97
Waist Girth	394	74-108	90.91 ± .28	5.51	6.06
Hip Girth	394	88-114	102.42 ± .22	4.39	4.29

TABLE LXXIV

XVI Very fat, non-musc. & sub-med. musculature

633

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	141	18-39	26.05 ± .58	6.85	26.30
Weight	142	147-232	186.53 ± 1.36	16.15	8.66
Stature	142	164-192	177.99 ± .47	5.65	3.17
Torso Length	97	53-68	60.14 ± .30	3.00	4.99
Bideltoid	141	42-56	47.76 ± .18	2.10	4.40
Chest Breadth	97	25-37	30.23 ± .19	1.83	6.05
Chest Depth	96	19-26	23.21 ± .16	1.52	6.55
Bi-iliac	97	22-37	30.79 ± .24	2.33	7.57
Leg Length	140	74-98	85.27 ± .35	4.15	4.87
Arm Length	140	67-87	78.67 ± .29	3.44	4.37
Cervicale	131	141-167	153.50 ± .48	5.55	3.62
Chest Girth	142	89-114	100.15 ± .40	4.73	4.72
Waist Girth	141	72-108	89.41 ± .48	5.68	6.35
Hip Girth	140	90-111	101.84 ± .35	4.17	4.09

TABLE LXXV

XVI Very fat, non-musc. & sub-med. musculature

711-722

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	19	19-35	22.95 \pm 1.17	5.10	22.42
Weight	19	194-256	220.11 \pm 3.74	16.30	7.41
Stature	19	164-191	178.19 \pm 1.30	5.66	3.18
Torso Length	12	55-63	60.37 \pm .66	2.29	3.79
Bideltoid	19	45-53	49.87 \pm .42	1.84	3.69
Chest Breadth	11	28-33	31.00 \pm .45	1.49	4.81
Chest Depth	11	22-28	25.18 \pm .46	1.54	6.12
Bi-iliac	11	29-37	34.18 \pm .75	2.49	7.28
Leg Length	19	78-99	86.82 \pm 1.21	5.29	6.09
Arm Length	19	70-85	79.08 \pm .74	3.21	4.06
Cervicale	18	141-168	153.28 \pm 1.48	6.27	4.09
Chest Girth	19	98-116	106.66 \pm 1.16	5.06	4.74
Waist Girth	19	86-108	98.45 \pm 1.37	5.96	6.05
Hip Girth	19	101-116	109.66 \pm .95	4.16	3.79

TABLE LXXVI

XVI Very fat, non-musc. & sub-med. musculature

731-732

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	79	18-44	25.80 \pm .71	6.35	24.61
Weight	77	175-276	221.66 \pm 2.40	21.05	9.50
Stature	79	156-191	173.94 \pm .70	6.19	3.56
Torso Length	48	53-64	59.41 \pm .39	2.73	4.60
Bideltoid	79	43-59	51.39 \pm .33	2.90	5.64
Chest Breadth	50	23-36	32.11 \pm .32	2.27	7.07
Chest Depth	50	21-31	25.63 \pm .27	1.92	7.49
Bi-iliac	50	26-38	33.23 \pm .35	2.51	7.55
Leg Length	79	68-92	81.77 \pm .52	4.66	5.70
Arm Length	77	70-88	77.18 \pm .41	3.57	4.63
Cervicale	74	133-165	149.88 \pm .70	6.05	4.04
Chest Girth	79	98-128	108.97 \pm .69	6.10	5.60
Waist Girth	77	72-119	103.23 \pm .79	6.97	6.75
Hip Girth	76	99-127	111.06 \pm .80	7.01	6.31

XVII. VERY FAT, MEDIUM MUSCULATURE

641; 642; 643; 741 - 751

These types, c. 2.65 per cent of the White series, are also very fat, but they have adequate skeletal and muscular support, with the second component attaining 4 - or, rarely, in the case of some 7--'s - 5. They are among the highest in average age (26.40 to 26.90 years). The 6--'s with this degree of second component support are considerably heavier on the average than the weak 6--'s with low 2nd component. The stronger 7--'s are about the same in weight as the weaker 7--'s. The 64-'s of medium musculature tend to be slightly taller than the 63-'s, but shorter than the 61-'s and 62-'s. The 73-'s are shorter than the 71-'s and 72-'s. Chest breadths are, if anything, slightly greater in this more mesomorphic group; chest depths also seem superior in both the 6--'s and 7--'s which have 4 in the 2nd component. Bi-iliac diameters are about the same in both groups. These stronger fat men also have bigger chest girths and waist girths, but hip girths seem to show no distinct trend of difference.

These very fat men of medium musculature are strongly in excess in the AAF, Ground, and in the ASF. They also are more than twice as frequent in Officers as in Privates, with Non-coms intermediate. Their outstanding military specialty is Supply, but they are strong also in Technical, Maintenance, and Medical. They are least often found in Gunnery, Communications, and Engineering.

TABLE LXXVII

XVII Very fat, med. musculature

641

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	232	18-44	26.90 ± .34	5.20	19.33
Weight	233	137-258	198.26 ± 1.16	17.70	8.93
Stature	233	149-184	169.81 ± .35	5.34	3.14
Torso length	180	50-69	58.02 ± .23	3.02	5.21
Bideltoid	232	43-57	49.93 ± .15	2.30	4.61
Chest Breadth	180	21-37	31.06 ± .16	2.11	6.79
Chest Depth	179	20-34	24.25 ± .15	1.96	8.08
Bi-iliac	180	23-37	31.17 ± .16	2.21	7.09
Leg Length	233	66-90	79.83 ± .26	4.04	5.06
Arm Length	233	66-82	75.47 ± .21	3.13	4.15
Cervicale	222	128-161	146.17 ± .35	5.25	3.59
Chest Girth	232	93-119	104.67 ± .33	5.09	4.86
Waist Girth	233	72-114	94.88 ± .42	6.34	6.68
Hip Girth	230	91-118	105.18 ± .30	4.60	4.37

TABLE LXXVIII

XVII Very fat, med. musculature

642

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	639	17-54	26.90 ± .21	5.25	19.52
Weight	639	150-264	192.16 ± .70	17.65	9.18
Stature	639	158-189	173.44 ± .22	5.61	3.23
Torso Length	452	50-69	99.39 ± .14	2.88	4.85
Bideltoid	636	40-59	49.03 ± .09	2.22	4.53
Chest Breadth	447	19-36	30.60 ± .10	2.08	6.80
Chest Depth	446	20-36	23.87 ± .09	1.89	7.92
Bi-iliac	449	21-39	31.13 ± .11	2.34	7.52
Leg Length	637	70-93	82.26 ± .16	3.97	4.83
Arm Length	637	65-89	76.90 ± .13	3.36	4.37
Cervicale	600	133-166	149.31 ± .22	5.42	3.63
Chest Girth	637	84-131	102.55 ± .20	4.95	4.83
Waist Girth	638	75-115	91.46 ± .22	5.68	6.21
Hip Girth	633	88-119	102.88 ± .18	4.60	4.47

TABLE LXXIX

XVII Very fat, med. musculature

643

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	85	17-48	26.70 \pm .65	5.95	22.28
Weight	83	161-227	189.42 \pm 1.66	15.10	7.97
Stature	83	169-189	178.37 \pm .53	4.80	2.69
Torso Length	63	53-65	59.96 \pm .35	2.79	4.65
Bideltoid	83	42-53	48.23 \pm .22	2.03	4.21
Chest Breadth	61	25-39	30.11 \pm .30	2.35	7.72
Chest Depth	61	19-32	23.66 \pm .23	1.80	7.61
Bi-iliac	61	27-37	31.14 \pm .27	2.14	6.87
Leg Length	83	77-95	85.40 \pm .39	3.58	4.19
Arm Length	83	67-86	78.35 \pm .33	3.06	3.91
Cervicale	79	140-163	153.56 \pm .54	4.80	3.13
Chest Girth	83	90-118	100.97 \pm .52	4.72	4.67
Waist Girth	83	81-107	88.86 \pm .57	5.21	5.86
Hip Girth	80	92-112	101.76 \pm .45	4.03	3.96

TABLE LXXX

XVII Very fat, med. musculature

741-751

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	83	18-39	26.40 \pm .67	6.10	23.11
Weight	83	176-268	220.87 \pm 2.41	22.00	9.96
Stature	83	150-184	171.93 \pm .77	7.03	4.09
Torso Length	61	51-65	59.15 \pm .38	2.94	4.97
Bideltoid	83	44-56	51.72 \pm .28	2.53	4.89
Chest Breadth	60	27-38	32.52 \pm .23	1.81	5.57
Chest Depth	60	21-29	25.83 \pm .23	1.81	7.01
Bi-iliac	60	28-39	33.02 \pm .30	2.32	7.03
Leg Length	83	65-89	80.33 \pm .51	4.66	5.80
Arm Length	83	63-84	76.31 \pm .44	4.01	5.25
Cervicale	78	129-160	147.98 \pm .75	6.66	4.50
Chest Girth	83	95-140	110.08 \pm .78	7.09	6.44
Waist Girth	80	87-123	102.61 \pm .79	7.07	6.89
Hip Girth	83	100-120	108.90 \pm .61	5.53	5.08

XVIII. VERY FAT, VERY MUSCULAR

651-652

This is a very small group, (ninety-two 651's and eighty-four 652's) in which extreme fat is accompanied by superior muscularity and great sturdiness of bony framework. These men have the highest average ages of the series (28.00 and 27.70 years). The individuals in the group are of phenomenal bulk and strength - types frequently seen in professional wrestlers and professional football linemen. Average weights are about 198 lbs, but vary from 163-254 lbs. Stature is not great, ranging from means of 168.88 cm in the 651's to 174.38 cm in the 652's.

Bideltoid breadths exceed those of the 6--'s who are weaker in the 2nd component, but not the means of the grossly corpulent 7--'s (except the 711's and 712's). Leg lengths are somewhat shorter than those of the less muscular 6--'s and torso lengths are slightly longer. These great brutes have somewhat larger chest diameters and girths than the 64-'s, out their waist and hip girths tend to fall slightly below the fat 6--'s of only moderate muscular endowment.

These rare types are more than twice as frequent among Officers as among Non-coms and about four times as frequent among Officers as among Privates. They are in excess in the AGF (except Infantry), slightly commoner in AAF Flight than Ground, but, in general, not disproportionately represented in any of the total army units (AAF, AGF, ASF). In military specialty we find them in great excess in Engineering, in marked excess in Supply, moderately in excess in Maintenance, Transportation, and Technology, markedly deficient in Communications, Gunnery and Administration.

TABLE LXXXI

XVIII Very fat, very muscular

651

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	92	19-48	28.00 ± .52	5.05	18.04
Weight	92	163-242	197.57 ± 1.75	16.80	8.50
Stature	92	158-183	168.88 ± .51	4.86	2.88
Torso Length	74	53-68	58.75 ± .34	2.96	5.04
Bideltoid	91	41-57	50.22 ± .26	2.44	4.86
Chest Breadth	72	27-34	31.48 ± .21	1.79	5.69
Chest Depth	74	20-34	24.29 ± .25	2.17	8.93
Bi-iliac	73	26-36	31.27 ± .24	2.01	6.43
Leg Length	92	69-89	78.66 ± .37	3.57	4.54
Arm Length	92	63-81	74.82 ± .33	3.13	4.18
Cervicale	87	133-155	144.91 ± .47	4.35	3.00
Chest Girth	92	88-123	104.80 ± .58	5.53	5.28
Waist Girth	92	81-114	94.02 ± .61	5.89	6.26
Hip Girth	92	94-112	103.54 ± .36	3.44	3.32

TABLE LXXXII

XVIII Very fat, very muscular

652

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	84	19-44	27.70 ± .59	5.40	19.49
Weight	84	168-254	198.09 ± 1.84	16.90	8.53
Stature	84	164-188	174.38 ± .56	5.14	2.95
Torso Length	59	55-68	59.87 ± .32	2.47	4.13
Bideltoid	84	43-57	50.14 ± .27	2.45	4.89
Chest Breadth	59	26-36	31.74 ± .24	1.84	5.80
Chest Depth	59	21-33	24.47 ± .24	1.86	7.60
Bi-iliac	58	21-35	31.04 ± .32	2.42	7.80
Leg Length	84	69-93	82.13 ± .47	4.31	5.25
Arm Length	84	69-86	77.12 ± .38	3.44	4.46
Cervicale	78	139-164	149.98 ± .57	5.03	3.35
Chest Girth	84	92-119	105.14 ± .50	4.55	4.33
Waist Girth	82	81-103	91.34 ± .48	4.33	4.74
Hip Girth	82	96-114	103.49 ± .40	3.63	3.51

ANALYSIS OF BODY TYPES BY CHEST GIRTH AND STATURE

The minimal square of the large bi-variate table includes statures from 150-154 cm and chest girths from 74-78 to 104-108 cm. Only 35 individuals occur fairly well scattered in 10 of 18 body build groups. No body build in this group exceeds 4 in the 3rd component, nor are there any 1's in the first component. These very short men are mostly 4's and 5's in the first component, 1's, 2's, and 3's, in the 3rd, usually 4 or 5 in the 2nd. The commonest chest girth is 84 to 88 cm in this 150-154 cm group.

For statures 155 to 159 cm, the range of chest girth is again 74-78 to 104-108 cm with the modal chest girth again at 84-88. The commonest body build group is X, Balanced, short to medium, with 20.75% of the 429 individuals in this section of the table. Every body build group occurs except the Balanced, tall. The commonest type is 443 (63 persons).

2581 individuals (6.56% of the White series) fall in the 160-164 stature and 69-73 to 114-118 chest girth range. The modal girths are 84-88 cm in the 862 individuals and 89-93 cm with 800 individuals. The commonest body build group is again X, Balanced, short to medium (21.74%), but all groups are represented except XI, Balanced tall. The commonest body types are 443, 334, 433, 444, 542. In this square occur considerable numbers of group V, Submedium fat, submedium musculature (33-'s). There are many 5's in the first component, a fair number of 6's, and even a few 7's.

In the 165-169 cm group are 7611 (19.33% of the series) individuals representing all 18 body build types. The mode is still at Group X, Balanced, short to medium, with 20.02%, but group IX, Medium plump, submedium musculature is a close second with 16.28%. The 443's, 334's, and 433's are especially numerous. In this stature range (165-169 cm) the modal chest girths are 84-88 cm with 2288 individuals and 89-93 with 2603 men. However, the total range is 69-73 to 114-118.

170-174 cm is the modal section of the table with 12,094 individuals, (30.72% of the series). The modal chest girth is 89-93 cm (4369 individuals - 36.12%). Groups X, Balanced, short to medium and IX, Medium plump, submedium musculature, are about equal with 18.17% of the former, 17.69% of the latter. But group V, Submedium, submedium musculature, has 15.62% and is well established in third place. The leading body build types are thus the 44-'s, 43-'s, and 33-'s. This may be said to be the average stature group.

175-179 cm contains 10,202 individuals (25.92% of the series) and the modal chest girth is still 89-93 cm with 35.60%. Thus Group IX, the 43-'s, definitely takes the lead, with V, the 33-'s, second and X, the 44-'s last.

The 180-184 stature group includes 4817 individuals (only 12.24% of the series). The modal chest girth is 89-93 with the commonest body type Group IX, (the 43-'s) with 21.42% and V, the 33-'s, with 18.26%.

185-189 cm includes 1356 individuals (3.44% of the series) with V now definitely in the lead (20.65%), IX second (19.99%), and IV, Submedium, non-muscular, medium and elongate rising to third place with 12.09%. The modal chest girths are 79-83 and 84-88 (33.11% and 32.01% respectively).

190-194 cm is represented by 213 individuals, with the modal chest girth 94-98 cm, the modal group again IX with V and IV strongly represented.

195-199 is an enormously tall group with a representation of only 27 individuals. The modal girth is 89-93 cm. The commonest body build group is IV, Submedium, non-muscular, medium and elongate - the 31-'s, and 32-'s - physically very weak, with a fair representation of the good group V, the 33-'s, but also the poor VIII, Medium plump, non-muscular (41-'s, and 42-'s).

Group I, Thin, non-muscular, elongate occurs in every stature division except 150-154, rising to its mode 14.08% (as against 2.94% in the total series) in the extremely tall 190-194 cm group. It is above parity in groups from 175-179 cm and upwards. Thus, this relatively weak group tends to occur with increasing frequency in the tall and very tall group. Commonest chest girths are 84-88 cm and 79-83 cm.

Group II, Thin, submedium musculature, elongate, occurs in the total series in about 2.27%. It occurs in all stature groups except the lowest and the highest. This slightly better class of physiques than those of Group I does not show any marked regression upon stature. Commonest chest girths are 84-88, 89-93 cm.

Group III, Thin, medium musculature, is very small (.69% of the series). It shows a general but irregular distribution, lacking only in the highest stature class. Commonest chest girths, 84-88 cm and 89-93 cm.

Group IV, Submedium, non-muscular, medium and elongate, is found in 5.45% of the whole series and is a class of extremely weak physiques. This group increases with stature until it reaches its mode of 29.63% in the tallest stature group. Commonest chest girths are 84-88 and 39-93.

Group XII, Medium fat, muscular (5.55% of the series). These are among the most impressive in muscular development. This class reaches its maximum in the lowest stature class (17.14%) and thereafter diminishes gradually until it disappears in the highest stature class. Commonest chest girths, 89-93 cm and 94-98 cm.

Group XIII, Fat, non-muscular and submedium musculature (6.56% of the series) tends to maintain a fairly proportionate distribution throughout the stature classes, falling off noticeably in the tallest stature group. Commonest chest girths are 94-98 cm and 89-93 cm.

Group XIV, Fat, medium musculature (7.79% of the series) reaches its maximum (17.14%) in the lowest stature group and thereafter drops away gradually until it disappears in the highest. Commonest chest girths, 94-98 cm, 99-103 cm.

Group XV, Fat, muscular (1.79% of the series), reaches its maximum (14.29%) in the lowest stature group. Thereafter it declines rapidly and is absent from the two highest stature groups. Commonest chest girths, 94-98 cm, 99-103 cm.

Group XVI, Very fat, non-muscular and submedium musculature (1.78% of the series) is, in general, fairly regularly distributed throughout the stature classes, but reaches its maximum (4.23%) suddenly in the very tall 190-194 cm group. Commonest chest girths are 99-103 cm and 94-98 cm.

Group XVII, Very fat, medium musculature (2.65%) is regular in distribution, but disappears in the two highest stature groups. Commonest chest girths, 99-103 cm and 104-108 cm.

Group XVIII, Very fat, very muscular (.49% of the series) is moderately regular, but is absent in the lowest and two highest stature groups. Commonest chest girths, 104-108 cm and 99-103 cm.

Table LXXXIII

Stature: 150-154 cm.

	69- 73	74- 78	79- 83	84- 88	89- 93	94- 98	Chest Girth			109- 113	114- 118	119- 123	124- 128	129- 133	Totals	%
I																
II															1	2.86
III				1												
IV																
V			3												3	8.57
VI		1	1	1											3	8.57
VII			1	1											2	5.71
VIII																
IX			1	2											3	8.57
X				4											4	11.43
XI																
XII			2	3	1										6	17.14
XIII					2										2	5.71
XIV				2	3	1									6	17.14
XV				2	1										5	14.29
XVI																
XVII																
XVIII																
Totals	1	8	16	7	1	1	1	1							35	99.99
%	2.86	22.86	45.71	20.00	2.86	2.86	2.86	2.86								100.01

Table LXXIV

Stature: 155-159 cm.

	69- 73	74- 78	79- 83	84- 88	89- 93	94- 98	99- 103	104- 108	109- 113	114- 118	119- 123	124- 128	129- 133	Totals	%
I	3			1										4	.93
II		2	1	1										4	.93
III				1	1									2	.47
IV		1	3	1										5	1.17
V			16	12	2									30	6.99
VI		2	12	22	1									37	8.62
VII			3	9	10	1								23	5.36
VIII			1											1	.23
IX			14	26	9	1								50	11.66
X		2	17	45	23	1	1							89	20.75
XI															
XII			3	23	23	7								56	13.05
XIII				13	13	3								29	6.76
XIV			4	15	29	10	2							51	11.89
XV				3	16	9								28	6.53
XVI					1	3	2							6	1.40
XVII					4	1	5	1						11	2.56
XVIII						1	2							3	.70
Totals	13	74	172	123	37	12	1	1						429	100.00
%	2.35	17.25	40.09	28.67	3.62	2.80	.23								99.99

Table LXXIV

Stature 160-164 cm.

	Chest Girth													Totals 24	% .93
	69-73	74-78	79-83	84-88	89-93	94-98	99-103	104-108	109-113	114-118	119-123	124-128	129-133		
I	1	4	15	4										45	1.74
II		5	27	13										19	.74
III		1	5	11	2									57	2.21
IV		3	30	22	2									309	11.97
V		14	116	136	38	5								204	7.90
VI			43	93	64	4								93	3.60
VII			9	42	31	10	1							33	1.28
VIII		3	11	14	4	1								337	13.06
IX		3	59	164	97	14								561	21.74
X	1		40	238	223	56	3								
XI															
XII			4	55	125	50	6							240	7.30
XIII		2	2	32	71	46	7							160	6.20
XIV	1		1	35	105	107	22	5	1					277	10.73
XV				2	24	48	15		1					90	3.49
XVI				1	7	18	11	3						40	1.55
XVII					7	31	27	6	1	1				73	2.83
XVIII						6	6	5	1	1				19	.74
Totals	3	35	362	862	800	396	98	19	4	2				2581	100.0
%	.12	1.36	14.03	33.40	31.00	15.34	3.80	.74	.15	.08					100.0

Table LXXVI

Stature: 165-169 cm.

	69- 73	74- 78	79- 83	84- 88	89- 93	94- 98	Chest Girth			109- 113	114- 118	119- 123	124- 128	129- 133	Totals	%
I	1	24	77	35	4		99- 103	104- 108							141	1.85
II		3	43	48	5		1								100	1.31
III		2	4	22	13										41	.54
IV		8	109	123	23	6									269	3.53
V	1	8	249	584	220	21									1083	14.23
VI			59	259	204	35	1								558	7.33
VII		1	4	63	91	33	2	.1							195	2.56
VIII		2	30	71	60	12									175	2.30
IX		3	73	481	544	127	11								1239	16.28
X		3	40	475	699	292	13	2							1524	20.02
XI			2	3	1										6	.08
XII		2	2	49	232	162	35	3							485	6.37
XIII				41	192	178	48	5							464	6.10
XIV		1		28	258	325	126	13	1	1					753	9.89
XV				2	29	71	47	7	2						158	2.08
			1	1	18	55	43	15	4	2					139	1.83
				2	9	58	98	50	8	4					229	3.01
XVI				1	1	11	21	14	4						52	.68
Totals	2	57	693	2288	2603	1386	446	110	19	7					7611	99.99
%	.03	.75	9.11	30.06	34.20	18.21	5.86	1.45	.25	.09					100.01	

Stature: 170-174 cm.

Table LXXXVII

	69- 73 1	74- 78 16	79- 83 139	84- 88 129	89- 93 26	94- 98 1	Chest Girth				119- 123	124- 128	129- 133	Totals	%
I							99- 103	104- 108	109- 113	114- 118				312	2.58
II		1	58	135	60	11								215	2.03
III			5	38	19	2								64	.53
IV		13	152	321	139	12								637	5.26
V	2	4	213	920	648	98	3	1						1889	15.62
VI			25	278	377	111	5							796	6.58
VII			6	32	127	58	9							232	1.92
VIII		1	25	142	141	44	4	1						358	2.96
IX		4	56	586	1030	400	58	5						2139	17.69
X	1		16	342	1118	622	95		3					2197	18.17
XI				24	12	1								37	.31
XII			1	26	219	253	65	8	1					573	4.74
XIII		1	3	43	249	377	135	16	1	1	1			827	6.84
XIV	1		3	14	191	468	265	46	5	1				994	8.22
XV				3	15	48	50	15	2					133	1.10
XVI		1	1	1	10	71	104	44	17	5				254	2.10
XVII					8	47	164	85	29	9	3	1		346	2.86
XVIII							17	32	12					61	.50
Totals	5	41	703	3034	4369	2624	974	253	70	16	4	1	1	12094	100.01
%	.04	.34	5.81	25.09	36.12	21.70	8.05	2.09	.58	.13	.03	.01	.01		99.99

Stature: 175-179 cm.

Table LXXXVIII

	69- 73	74- 78	79- 83	84- 88	89- 93	94- 98	99- 103	Chest Girth 104-109- 108 113	114- 118	119-124- 123 128	129- 133	Totals 423	% 4.15
I												206	2.02
II		2	25	99	71	9						55	.54
III			2	21	26	6						770	7.55
IV	1	6	112	384	225	42						1716	16.82
V	2	2	89	660	789	162	12					596	5.84
VI			10	129	297	143	16	1				114	1.12
VII			1	8	41	50	11	3				404	3.96
VIII			10	112	198	77	7					2027	19.87
IX	1	15	322	984	611	110	4					1535	15.05
X	1	6	92	624	664	139	8	1				87	.85
XI		4	39	37	6	1						319	3.13
XII			5	69	118	78	17	2				765	7.50
XIII			2	8	166	366	197	24	2			635	6.22
XIV				3	58	253	244	68	8	1		77	.75
XV					1	18	40	17	1			202	1.98
XVI					5	40	79	53	15	8	1	238	2.33
XVII					1	9	97	85	34	7	5	33	.32
XVIII							11	9	9	2	2	16202	100.00
Totals	4	26	399	2100	3632	2610	1043	289	72	18	8		99.99
%	.04	.25	3.91	20.58	35.60	25.58	10.22	2.83	.71	.13	.08		

Table LXXXIX

Statures: 180-184 cm.

Table LXXIX															Chest Girth															Totals	Σ																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
69-73	74-78	79-83	84-88	89-93	94-98	99-103	104-108	109-113	114-118	119-123	124-128	129-133																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
I		5	40	144	72	7								268	5.56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Stature: 185-189 cm.

Table XC

	Chest Girth				Totals			
	69-73	74-78	79-83	84-88	89-93	94-98	99-103	104-108
I	II	54	34	5				104
II		7	11	6	2			26
III		1	7	1	1			10
IV	7	46	83	26	1	1		164
V	1	45	133	92	9			280
VI		2	21	27	9			59
VII			2	5				7
VIII		5	40	33	7			85
IX		9	84	121	46	11		271
X			12	53	34	7	1	107
XI			12	15	3			30
XII				7	10	4	1	22
XIII			9	32	35	19	3	98
XIV	1		1	7	25	8	3	45
XV				1	3	1		5
XVI				2	8	6	2	21
XVII				1	1	11	5	21
XVIII							1	1
Totals	20	169	449	434	194	68	15	1356
%	1.47	12.46	33.11	32.01	14.31	5.01	1.11	99.99

Table XCI

Stature: 190-194 cm.

	Chest Girth												Totals	%
	69-73	74-78	79-83	84-88	89-93	94-98	99-103	104-108	109-113	114-118	119-123	124-128	129-133	
I			3	9	15	3							30	14.08
II					2								2	.94
III					2	1							3	1.41
IV				4	15	12	1						32	15.02
V		1		5	8	15	4						33	15.49
VI					3	2							5	2.35
VII						1			1				2	.94
VIII					5	8	2	2					17	7.93
IX				6	6	24	12	6					48	22.54
X							4	5					9	4.23
XI					2	3	1						6	2.82
XII							2	1					3	1.41
XIII						1	11	1					13	6.10
XIV								1					1	.47
XV														
XVI						1	1	5	1	1			9	4.23
XVII														
XVIII														
Totals	1	3	18	58	71	39	21	1	1	1			213	100.01
%	.47	1.41	8.45	27.23	33.33	18.31	9.86	.47	.47	.47				100.00

Table XCII

Stature: 195-199 cm.

	69- 73	74- 78	79- 83	84- 88	89- 93	94- 98	99- 103	104- 108	109- 113	114- 118	119- 123	124- 128	129- 133	Totals	%
I				1	1									2	7.41
II															
III															
IV			1		5	2								8	29.63
V					2	2	1							5	18.52
VI						1								1	3.70
VII															
VIII					1	2	2							5	18.52
IX							3	1						4	14.81
X									1					1	3.70
XI															
XII															
XIII							1							1	3.70
XIV															
XV															
XVI															
XVII															
XVIII															
Totals			1	1	9	7	7	1	1					27	99.99
%			3.70	3.70	33.33	25.93	25.93	3.70	3.70						99.99

TABLE XCIII

Distribution of Stature Groups

In the Total Series

<u>Stature</u>	<u>No.</u>	<u>% of Total Series</u>
150-154	35	.09
155-159	429	1.09
160-164	2581	6.56
165-169	7611	19.33
170-174	12094	30.72
175-179	10202	25.92
180-184	4819	12.24
185-189	1356	3.44
190-194	213	.54
195-199	<u>27</u>	<u>.07</u>
Totals	39367	100.00

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GENERAL RESULTS - WHITE SERIES

Distribution of Somatotypes (Body Types)

In 39,376 White soldiers there occur 125 distinct body types of which 27 are excessively rare. Analyses of the occurrence of the various grades of the three structural components (each rated 1 to 7) shows that grade 1 in the third component (the least degree of elongation and attenuation) regularly goes with high values of the 1st (fatty component - 7--'s, 6--'s, 5--'s). There are very few weak fat men in the Army series (high in the 1st component and low in the 2nd, bone-and-muscle, component). The percental expectation of the grade of each component in association with variations of the other two components makes it possible to predict with fair accuracy from the height/cube root of weight index the distribution of body types in any sample of U.S. White males of military age, and perhaps of other males of European ancestry.

In general, very thin and very fat body types are rare in the Army. Balanced types (the three structural components equal or nearly so) tend to predominate.

Analyses of Separate Measurements

Age

Mean age rises with increments of the 2nd (bone-and-muscle) component, falls with increments of the 3rd (elongation and attenuation) component, but does not increase or decrease regularly with rise of the 1st (fatty) component. Muscle increases after maturity, fat in some body types, but not all.

Weight

Increases in progressively larger amounts with increments of the 1st (fatty) component; merely fluctuates with rise of the 2nd (bone-and-muscle) component; diminishes with rise of the 3rd (elongation and attenuation) component. The largest number of body types occurs in the average weight limits of 150-159.9 lbs.

Stature

Stature rises with increase of the 1st (fatty) component; does not change consistently with increase of the 2nd component; increases largely with rise of the 3rd component. With increasing categories of stature, physically poor and mediocre types become more numerous. Short men have the best muscled physiques.

Torso Length

Rises with 1st component increments; does not change with 2nd component; increases consistently with rise of 3rd component.

Bideltoid (Shoulder Breadth)

Shoulder breadth rises with increase of 1st component; does not change regularly with 2nd component variations, but tends to increase if anything; drops slightly with rise of the 3rd component.

Chest Breadth

Rises with 1st component increments; rises not as markedly with 2nd component. Diminishes only insignificantly with rise of the 3rd component.

Chest Depth

Increases with 1st component. Unreliable measurement.

Bi-iliac (Pelvic Breadth)

Very stable, rises only with fat increases.

Leg Length

Increases with rising 1st component, decreases with 2nd; increases with 3rd. The shortest legs are found in the strongest men.

Arm Length

Behaves with structural changes much as does leg length.

Cervicale

Shows changes similar to those of stature.

Chest Girth

Rises with 1st component; increases irregularly with rise of 2nd; decreases with rising 3rd component.

Waist Girth

Rises largely with 1st component increases; diminishes slightly with 2nd component increases; drops consistently with 3rd component increase.

Hip Circumference

Rises with 1st component; fluctuates with 2nd; diminishes irregularly with 3rd.

Conclusion

Changes in measurements of body types with increase of the grade of one of the three structural components, the other two being held constant, tend to be consistent in one or other direction when the 1st component (fatty deposits) and the 3rd component (elongation and attenuation) are concerned. Changes in the second component do not usually carry with them constant increases or decreases of measurements. Muscular relief and development is not as easily distinguishable from measurements as are fatty developments and elongation and attenuation.

The Metric Features of Separate Groups of Body Types as Entities and their Comparison

I. Thin, non-muscular, elongate

Three large body types (225, 226, 227) and an array of rare types. These are most thin, meager, and poorly muscled types, greatly in excess among Privates, markedly deficient in Non-coms and Officers. Some of these types probably should not be accepted for military duty involving physical exertion. Detail of the text shows metric differences from type to type within this group.

II. Thin, submedium musculature, elongate

This group (about 2.27% of the White sample) is physically better than the preceding. There are three main body types of medium to moderately tall men, fairly light and not weak in musculature. Commonest in Privates and in excess in the AAF.

III. Thin, medium musculature

Two rare body types in this group consist of lean, light, well-muscled men. The group is 0.69% of the series and is in excess among Officers and in the AAF.

IV. Submedium, non-muscular, medium and elongate.

A small group (5.45% of series) including light-weight, medium and tall men of feminine body contours and muscularly very weak. Extremely poor physiques. Excessively found among Privates and in the AAF.

V. Submedium, submedium musculature

A group of good light-weight body types usually rather elongate, but fat and muscle balanced (14.70% of the White series). Light combat and general utility types.

VI. Submedium medium musculature

Three body types of spare, fairly well-muscled men, constituting 6.86% of the White series and above average age. Light, athletic, "rangy" types, in excess among Privates and the AGF.

VII. Submedium, muscular

A considerable number of separate types - all rare - all lean but extremely muscular, have been lumped together in this class which includes 2.38% of the White series. The commonest single type (354) contains only 391 men. These are men over average age for the series, not heavy (usually ranging between 138 and 150 lbs). They are somewhat below average stature, but broad-shouldered, big-chested, and generally powerful. They are in excess among Officers, in the AGF, and especially in the Infantry.

VIII. Medium plump, non-muscular

A group of three body types (423, 424, 425) comprising 3.05% of the White series. These types are well nourished weaklings, often elongated and feminized in body contours. The types are in excess in Privates and certain non-combat military units and specialties.

IX. Medium plump, submedium musculature

Four body types (432, 433, 434, 435) which comprise 17.70% of the White series (the largest single group). They show considerable variation in measurements and proportions, but are moderately well built and probably physically fit, although slightly underdeveloped muscularly. This is a general utility and combat type found in all branches of the service.

X. Balanced, short to medium

XI. Balanced tall

These two classes of men with grade 4 in each of the first two components are separated into the Balanced, short to medium, and the Balanced, tall, the former very numerous, 16.52% of the White series, the latter very small, .81%. The Balanced, short to medium are finely built men of usually medium size, the Balanced tall also fine-looking but rather overgrown and elongated. The former constitute the backbone of the combat troops, but the Balanced tall men are more often found in other activities.

XII. Medium fat, muscular

This group of five types (452, 453, 454, 462, 463) includes the outstanding "muscle men," usually rather short and heavy and above average age (means about 25-26 years). These are combat types found in excess in Privates, in the AGF and often of recent Central European origin.

XIII. Fat, non-muscular and submedium musculature

Five body types of fat (but not excessively obese) men with poor muscular support. They constitute 6.56% of the White series and are commonly tall men with average weights from about 167 to 170 lbs. They are excessively represented among Officers and in the ASF. They are not combat types.

XIV. Fat, medium musculature

This group includes three body types (542, 543, 544). They are strong fat men above average age, better muscled than the preceding class, with broader shoulders, bigger chests, longer torsos and shorter extremities. The group is in excess in Non-coms and Officers and in the ASF. Not an Infantry combat type.

XV. Fat, muscular

A small group of fat but very muscular men, some of them of prodigious bulk. Common among Officers rather than Privates. In excess in AAF and somewhat deficient in AGF.

XVI. Very fat, non-muscular and submedium musculature

This group, comprising 1.78% of the White series, includes extremely obese men, relatively poorly muscled, averaging 186 to 222 lbs. and medium to tall. They are frequently advanced in age and probably ill-fitted for active military service. They are in excess in Officers and are not found usually in combat units.

XVII. Very fat, medium musculature

This group (2.65% of the White series) is composed of better muscled and apparently much stronger fat men. Military activity correlates are similar to those of the preceding group.

XVIII. Very fat, very muscular

An extremely small group of tremendously bulky, powerful men with higher average age than any other group (mean close to 28 years). Often seen among wrestlers and professional football players. Usually found among Non-coms and Officers. In excess in the AGF except Infantry.

Analysis of Body Types by Chest Girth and Stature

These complicated tables show the percental distribution by body build groups for five combinations of cm. intervals of stature and of chest girth. They are drawn up so as to provide for the most important clothing measurements, the occurrence of body types each within stated metric limits. The tables are elaborately analyzed to show the modal occurrence of each body build group, its limits, its stature and chest girth trends, etc. (Reference: Tables LXXXIII through XCII).

ANALYSIS OF SEPARATE MEASUREMENTS

NEGRO - AGE

The increments and decrements with age seem to be about the same as in Whites. Age increases with rising 2nd component and with rising 1st component except in the lower grades of the latter (1, 2, 3). Usually decrements take place with rising 3rd component, but these are not consistent.

Individual age ranges from 17 to 43 years (Whites 17-62 years). Evidently there are no long-term Negro soldiers in this sample. Group means range from 22.05 years to 26.80 years (Whites 22.25 years to 28.00 years). Following are age differences in corresponding groups:

<u>Negroes</u>	<u>Mean Age</u>	<u>Excess</u>
225	22.15	-0.65
234	24.15	+0.90
235	23.25	-0.95
324	22.70	-0.55
325	22.05	-0.85
333	23.20	-0.40
334	22.35	-1.25
335	22.60	-1.00
343	23.15	-1.50
344	23.55	-0.65
345	23.10	-1.65
353	25.20	-0.15
424	23.30	-0.05
433	24.10	-0.25
434	23.35	-0.75
442	23.60	-1.25
443	23.40	-1.30
444	23.80	-0.50
453	24.60	-0.30
532	25.95	+0.10
533	25.45	-0.40
541, 542	25.60	-1.10

Thus the Negroes of most groups tend to average somewhat younger than the corresponding Whites.

TABLE XCIV

NEGRO - AGE

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
116 -226	72	17 - 42	22.50 ± .55		4.65	20.67
225	82	19 - 36	22.15 ± .42		3.80	17.16
234	39	19 - 35	24.15 ± .74		4.60	19.05
235	52	18 - 37	23.25 ± .62		4.45	19.14
145, 244, 245	18	19 - 34	26.94			
314 - 316, 326	24	18 - 25	22.29			
324	79	19 - 42	22.70 ± .51		4.55	20.04
325	87	18 - 31	22.05 ± .38		3.55	16.10
333	97	18 - 39	23.20 ± .43		4.20	18.10
334	536	17 - 40	22.35 ± .17		4.00	17.90
335	204	17 - 38	22.60 ± .28		4.00	17.70
343	122	17 - 36	23.15 ± .35		3.85	16.63
344	231	18 - 38	23.55 ± .26		4.00	16.99
345	26	17 - 40	23.10 ± .99		5.05	21.86
254, 255, 352, 354,						
355, 363, 364, 373	36	19 - 34	27.36			
353	26	19 - 37	25.20 ± 1.02		5.20	20.63
415, 423, 425	25	18 - 33	23.70			
424	32	19 - 36	23.30 ± .83		4.70	20.17
432, 435	20	19 - 32	23.00			
433	218	17 - 37	24.10 ± .30		4.40	18.26
434	167	17 - 41	23.35 ± .39		5.05	21.63
442	74	17 - 37	23.60 ± .51		4.35	18.43
443	326	17 - 38	23.40 ± .24		4.25	18.16
444	98	17 - 50	23.80 ± .57		5.60	23.53
452, 454, 462, 463	27	19 - 30	23.61			
453	33	19 - 31	24.60 ± .57		3.30	13.41
512, 522-524, 531,						
534, 535	17	19 - 39	24.85			
532	42	19 - 44	25.95 ± .90		5.85	22.54
533	51	19 - 35	25.45 ± .68		4.85	19.06
541, 542	68	19 - 36	25.60 ± .59		4.90	19.14
543, 544	41	19 - 38	26.40 ± .87		5.60	21.21
551-553, 562	12	20 - 33	26.25			
612, 621, 622, 631,						
632, 633, 721, 731	28	17 - 43	26.80 ± 1.22		6.45	24.07
641, 642, 741	21	20 - 35	26.55 ± .99		4.55	17.14

NEGRO - WEIGHT

The increments of weight with rise of 1st component are fairly consistent, as in Whites. There is some evidence of decrements in weight with rise of the 2nd component, when the other two components are held constant. The ordinary decrements with rise of the 3rd component seem to occur.

Individual weights of this Negro series of 3050± men is tabulated as 100-237 lbs. (Whites - 100-276 lbs). The mean ranges are 131.13 lbs. (116-226) to 198.47 lbs (61-'s, 62-'s, 63-'s, 72-'s, 73-'s). These may be compared with the ranges of White means (124.52 lbs to 221.66 lbs).

The comparative ranges of weights of body types in Negroes and Whites is shown by the following:

<u>Mean Weights - lbs.</u>	<u>Negroes</u>		<u>Whites</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
124-129.9	0	00.00	3	4.48
130-139.9	5	14.71	12	17.91
140-149.9	9	26.47	12	17.91
150-159.9	8	23.53	13	19.40
160-169.9	4	11.76	7	10.45
170-179.9	5	14.71	8	11.94
180-189.9	1	2.94	4	5.97
190-199.9	2	5.88	5	7.46
200-222	0	00.00	3	4.48

Comparisons of the weights of individual body types between Negroes and Whites are as follows:

<u>Negro</u>	<u>Mean</u>	<u>Excess in lbs.</u>
225	139.33	+7.38
234	137.38	+5.35
235	134.62	+1.72
324	143.68	+1.76
325	145.32	+4.88
333	148.60	+4.67
334	146.11	+3.71
335	144.98	+3.23
343	150.98	+7.67
344	147.56	+3.86
345	146.44	+2.29
353	152.18	+6.32
424	162.91	+8.46
433	158.72	+1.37
434	158.33	+4.74
442	160.78	-0.68
443	158.33	+2.13
444	156.58	+3.21
453	163.47	+6.21
532	173.94	+3.42
533	171.72	+1.59

Thus in 20 of 21 pairs of somatotypes the mean weights of Negroes substantially exceed those of Whites. How much of this difference is real and how much due to observational equation? We have seen that the Negroes tend to be taller, body type for body type, but this should not carry with it weight superiority within the types. It is possible that the thin shanks of the Negro have unduly affected our judgments of the 1st and 2nd components, grading them downward. This might result in excess of weight for corresponding types of Negroes over the Whites. On the other hand, the differences may be real since in truth Negro build types are never identical with corresponding types in Whites.

TABLE XCV

NEGRO - WEIGHT					
<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116-226	75	100 - 172	131.13	± 1.55	13.45
225	88	110 - 169	139.33	± 1.26	11.80
234	39	105 - 172	137.38	± 2.08	13.00
235	58	111 - 161	134.62	± 1.64	12.50
145, 244, 245	19	120 - 164	139.06		
314-316, 326	21	124 - 161	146.14		
324	81	120 - 182	143.68	± 1.48	13.35
325	90	112 - 189	145.32	± 1.50	14.25
333	102	108 - 180	148.60	± 1.37	13.85
334	575	112 - 185	146.11	$\pm .58$	13.85
335	213	116 - 187	144.98	$\pm .98$	14.30
343	125	112 - 190	150.98	± 1.38	15.40
344	248	112 - 184	147.56	$\pm .88$	13.85
345	26	120 - 175	146.41	± 2.47	12.35
254, 255, 352, 354,					
355, 363, 364, 373	36	114 - 170	146.43		
353	25	118 - 190	152.18	± 3.18	15.57
415, 423, 425	28	132 - 175	155.30		
424	30	131 - 185	162.91	± 2.95	16.15
432, 435	20	129 - 188	156.98		
433	231	111 - 201	158.72	$\pm .92$	14.00
434	177	123 - 211	158.83	± 1.20	16.00
442	78	135 - 198	160.78	± 1.55	13.65
443	347	113 - 196	158.33	$\pm .82$	15.25
444	113	118 - 206	156.58	± 1.19	12.70
452, 454, 462, 463	24	133 - 187	163.63		
453	33	133 - 201	163.47	± 2.84	16.32
512, 522-524, 531,					
534, 535	16	153 - 198	183.56		
532	45	147 - 218	173.94	± 2.58	17.30
533	55	146 - 198	171.72	± 1.62	12.03
541, 542	68	135 - 220	177.89	± 2.04	16.85
543, 544	41	146 - 237	178.47	± 2.79	17.85
551-553, 562	14	148 - 199	175.02		
612, 621, 622, 631,					
632, 633, 721, 731	32	162 - 237	198.47	± 3.52	19.90
641, 642, 741	23	160 - 232	194.33	± 4.12	19.34

STATURE - NEGRO

The usual rise in stature with increase of the 3rd component occurs in the Negroes. There is also indication of the decrease in stature with rise of the 2nd component when the other two components are held constant. Detailed comparisons of increments are hampered by the small size of the Negro series which necessitates many subgroups in which several body types are combined (the combinations often necessarily different from those used in the White series).

In the following cases the Negro subgroups are taller than the corresponding White subgroups except in a few cases:

<u>Negroes</u>	<u>Mean</u>	<u>Excess in cm.</u>
225	176.81	+2.66
234	170.19	+1.80
324	172.23	+0.10
325	178.09	+1.32
333	168.21	+1.60
334	172.74	+0.77
335	177.54	+0.79
344	172.35	+0.50
424	178.75	+2.94
434	176.17	+0.98
444	174.83	+0.42
453	170.90	+0.69
235	173.77	-0.19
345	176.91	-0.14
442	165.72	-0.17
443	170.22	-0.02
533	173.74	-0.34
433	171.04	diff. = 0

From the above it is apparent that Negroes seem usually to exceed Whites in stature when similar body types are compared. In no instance is there any marked difference in the other direction. Unfortunately, the high first component body types among the Negroes are so few that the diverse combinations in the subgroups cannot be compared with those of the Whites.

The individual range of statures in the Negro series is 150 cm to 196 cm, as compared with 149 cm to 199 cm in the White series which is almost ten times as large. Mean ranges of Negro types are 165.72 cm to 182.21 cm, as compared with 165.16 cm to 184.13 cm in Whites.

TABLE XCVI

NEGRO - STATURE

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	151 - 194	176.24± .89	7.73	4.39
225	88	163 - 188	176.81± .55	5.15	2.91
234	39	156 - 181	170.19± .88	5.49	3.23
235	58	162 - 185	173.79± .72	5.45	3.14
145, 244, 245	19	165 - 196	174.61		
314 - 316, 326	21	172 - 192	182.21		
324	81	160 - 189	172.23± .61	5.48	3.18
325	90	163 - 195	178.09± .61	5.83	3.27
333	102	152 - 181	168.21± .52	5.29	3.14
334	575	157 - 188	172.74± .24	5.64	3.27
335	203	164 - 194	177.54± .41	6.02	3.39
343	125	150 - 181	168.58± .52	5.85	3.47
344	248	156 - 186	172.35± .36	5.74	3.27
345	26	166 - 184	176.91± .94	4.69	2.65
254, 255, 352, 354,					
355, 363, 364, 373	36	159 - 178	169.64		
353	25	151 - 182	168.61± 1.26	6.15	3.65
425, 423, 425	28	157 - 188	171.34		
424	30	164 - 188	178.75± 1.11	6.09	3.41
432, 435	20	155 - 190	172.10		
433	232	152 - 186	171.04± .34	5.21	3.05
434	177	162 - 191	176.17± .43	5.69	3.23
442	78	155 - 178	165.72± .53	4.70	2.84
443	347	153 - 184	170.22± .30	5.55	3.26
444	113	159 - 183	174.83± .47	4.99	2.85
452, 454, 462, 463	24	158 - 185	169.33		
453	33	159 - 181	170.90± .93	5.36	3.14
512, 522-524, 531					
534, 535	16	159 - 190	176.58		
532	45	159 - 183	169.58± .90	6.07	3.58
533	56	163 - 186	173.74± .64	4.80	2.76
541, 542	68	154 - 180	169.52± .71	5.86	3.46
543, 544	41	165 - 192	176.21± .93	5.93	3.37
551-553, 562	14	158 - 180	168.38		
612, 621, 622, 631,					
632, 633, 721, 731	32	155 - 185	171.92± 1.06	6.01	3.50
641, 642, 741	23	158 - 179	168.58± 1.27	5.98	3.55

NEGRO - TORSO LENGTH

Torso lengths naturally increase with the 3rd component. As in Whites there is also some increment with increase of the 1st component. Changes of torso length with rise or fall of the 2nd component are uncertain.

The individual range of Negro torso length is 46 cm to 66 cm, whereas in Whites it is 45-79 cm. Mean ranges are 54.67 cm to 58.25 cm, as against 56.61 to 60.60 cm in Whites. Differences between corresponding types are:

<u>Negroes</u>	<u>Mean</u>	<u>Excess</u>
225	56.00	-2.30
234	54.67	-2.26
235	55.78	-2.65
324	55.59	-2.12
325	57.32	-1.32
333	55.39	-1.58
334	55.73	-2.04
335	56.85	-2.22
343	55.02	-1.59
344	55.85	-2.28
345	57.65	-1.86
353	55.75	-1.12
424	57.00	-1.69
433	55.58	-2.11
434	56.79	-1.86
442	54.93	-2.07
443	55.60	-2.12
444	56.53	-2.22
453	55.89	-1.84
532	55.64	-1.62
533	56.31	-2.49

Thus the Negroes who are generally taller than the Whites have consistently shorter torsos (in contrast to longer arms and legs).

TABLE XCVII

NEGRO - TORSO LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	58	49 - 62	55.81 ± .39	2.99	5.36
225	64	49 - 60	56.00 ± .33	2.64	4.71
234	27	47 - 60	54.67 ± .59	3.00	5.49
235	36	47 - 65	55.78 ± .53	3.17	5.68
145, 244, 245	10	53 - 61	56.55		
314 - 316, 326	11	55 - 62	57.90		
324	63	48 - 63	55.59 ± .35	2.74	4.93
325	69	48 - 65	57.32 ± .41	3.39	5.91
333	79	49 - 51	55.39 ± .30	2.65	4.78
334	407	49 - 63	55.73 ± .14	2.73	4.90
335	151	48 - 65	56.85 ± .27	3.31	5.82
343	84	47 - 61	55.02 ± .29	2.61	4.74
344	143	49 - 62	55.85 ± .22	2.67	4.78
345	15	54 - 62	57.65 ± .66	2.46	4.27
254, 255, 352, 354, 355, 363, 364, 373	17	51 - 60	55.04		
353	10	52 - 59	55.75 ± .78	2.35	4.21
415, 423, 425	15	49 - 66	55.05		
424	22	53 - 59	57.00 ± .38	1.74	3.05
432, 435	14	48 - 66	57.02		
433	150	49 - 64	55.56 ± .21	2.53	4.55
434	119	47 - 64	56.79 ± .28	3.01	5.30
442	56	48 - 59	54.93 ± .32	2.40	4.37
443	245	46 - 63	55.60 ± .19	2.92	5.25
444	80	48 - 64	56.53 ± .37	3.32	5.87
452, 454, 462, 463	14	49 - 59	55.81		
453	18	52 - 58	55.89 ± .48	1.98	3.54
512, 522-524, 531, 534, 535	14	50 - 63	57.59		
532	31	49 - 59	55.64 ± .42	2.32	4.17
533	36	50 - 64	56.31 ± .50	2.97	5.27
541, 542	49	50 - 63	56.02 ± .40	2.82	5.03
543, 544	26	51 - 62	57.53 ± .55	2.79	4.85
551-553, 562	9	51 - 60	55.67		
612, 621, 622, 631, 632, 633, 721, 731	20	54 - 63	58.25 ± .56	2.52	4.33
641, 642, 741	17	50 - 62	56.69 ± .81	3.25	5.73

NEGRO - BIDELOID

This measurement decreases with rising 3rd component, as in Whites. It tends to increase also with rising 1st and 2nd components. The individual range in Negroes is 32-55 cm (Whites 30 cm - 59 cm) and the range of means is 43.45 cm (325) to 49.23 (61-'s to 73-'s). Differences between corresponding body types are:

<u>Negroes</u>	<u>Mean</u>	<u>Excess</u>
225	44.69	+1.46
234	44.56	+1.87
235	43.78	+0.09
324	44.45	+0.44
335	44.70	+0.52
343	45.73	+0.74
344	45.45	+0.57
345	45.60	+0.90
353	46.09	+0.39
424	45.28	+0.42
433	45.91	+0.11
434	45.46	+0.28
442	46.18	-0.68
443	46.03	+0.20
444	45.86	+0.44
453	46.48	+0.24
532	47.07	+0.12
533	46.89	+0.19
541-2	47.73	+0.21

The Negroes have slightly broader shoulders than Whites of the same body types, but hardly more than might be related to the superior stature of the former. The superiority of the Negroes in bideitoid seems concentrated in the lower grades of the 1st component and fades out in the heavier, fatter types.

TABLE XCVIII

NEGRO - BIDELOID

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	39 - 54	44.08 ± .25	2.20	4.99
225	88	47 - 48	44.69 ± .18	1.69	3.78
234	38	39 - 47	44.56 ± .31	1.91	4.27
235	58	32 - 46	43.78 ± .32	2.44	5.57
145, 244, 245	18	41 - 47	44.95		
314 - 316, 326	21	39 - 46	43.88		
324	81	39 - 47	44.45 ± .21	1.89	4.25
325	90	32 - 49	43.45 ± .23	2.18	4.94
333	102	41 - 49	45.27 ± .16	1.62	3.58
334	573	40 - 51	44.92 ± .07	1.77	3.94
335	212	39 - 49	44.70 ± .13	1.89	4.23
343	125	40 - 50	45.73 ± .17	1.88	4.11
344	246	40 - 50	45.45 ± .12	1.88	4.14
345	26	42 - 48	45.60 ± .37	1.85	4.06
254, 255, 352, 354, 355, 363, 364, 373	36	39 - 48	45.59		
353	25	42 - 49	46.09 ± .38	1.87	4.06
415, 423, 425	27	41 - 48	45.30		
424	30	39 - 47	45.28 ± .35	1.92	4.24
432, 435	20	43 - 50	45.85		
433	229	41 - 50	45.91 ± .12	1.75	3.81
434	176	40 - 49	45.46 ± .14	1.82	4.00
442	78	43 - 50	46.18 ± .18	1.62	3.51
443	346	40 - 51	46.03 ± .10	1.80	3.91
444	113	41 - 49	45.86 ± .15	1.56	3.40
452, 454, 462, 463	24	42 - 51	46.78		
453	33	42 - 50	46.48 ± .37	2.11	4.54
512, 522-524, 531					
534, 535	16	42 - 50	47.01		
532	45	43 - 52	47.07 ± .34	2.25	4.78
533	55	43 - 52	46.89 ± .22	1.68	3.58
541, 542	68	43 - 52	47.73 ± .26	2.12	4.44
543, 544	41	40 - 51	46.86 ± .35	2.21	4.72
551-553, 562	13	44 - 51	47.99		
612, 621, 622, 631, 632, 633, 721, 731	32	36 - 55	49.23 ± .54	3.08	6.26
641, 642, 741	23	37 - 53	48.06 ± .71	3.33	6.93

NEGRO - CHEST BREADTH

There is some slight increase of chest breadth in Negroes with rising 1st component, and possibly some very slight increase also with rise of the 2nd component. Decreases with rising 3rd component are not consistent. On the whole this measurement shows no close relationship to shifting structural component. In Whites the relationship is tenuous, but more consistent.

Individual ranges are 17-39 cm in Negroes and 18-49 cm in Whites. The ranges of the means are 26.82 - 29.98 cm in Negroes and 25.89 - 32.52 cm in Whites.

Mean differences of corresponding body types are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	27.17	+0.22
234	27.83	-0.25
235	26.82	-0.31
324	27.29	-0.07
325	26.94	-0.18
333	27.88	+0.46
334	27.47	-0.07
335	27.42	-0.04
343	28.00	+0.03
344	27.59	-0.27
345	27.58	-0.25
353	27.85	-0.60
424	28.13	+0.37
433	28.01	-0.38
434	27.98	-0.04
442	28.54	-0.19
443	28.04	-0.44
444	27.88	-0.42
453	28.56	-0.11
532	28.10	-0.88
533	28.34	-0.61
541-2	29.41	-0.14

There is a tendency, on the whole, for Negro chests to be slightly narrower than those of Whites of corresponding body types.

TABLE XCIX

NEGRO - CHEST BREADTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	57	18 - 32	26.91 \pm .26	1.95	7.25
225	64	20 - 30	27.17 \pm .28	2.20	8.10
234	26	24 - 38	27.83 \pm .61	3.06	11.00
235	35	22 - 28	26.82 \pm .26	1.52	5.67
145, 244, 245	10	17 - 28	26.15		
314 - 316, 326	11	26 - 29	27.36		
324	62	24 - 32	27.29 \pm .20	1.60	5.86
325	69	21 - 29	26.94 \pm .17	1.41	5.23
333	80	24 - 36	27.88 \pm .18	1.61	5.77
334	404	20 - 36	27.47 \pm .07	1.57	5.72
335	151	22 - 37	27.42 \pm .14	1.74	6.35
343	83	21 - 36	28.00 \pm .22	2.00	7.14
344	145	23 - 31	27.59 \pm .12	1.39	5.04
345	15	25 - 29	27.58 \pm .28	1.06	3.84
254, 255, 352, 354,					
355, 363, 364, 373	17	25 - 32	27.80		
353	10	26 - 31	27.85 \pm .51	1.52	5.46
415, 423, 425	15	25 - 32	27.85		
424	22	25 - 37	28.13 \pm .52	2.38	8.46
432, 435	14	25 - 29	27.59		
433	150	21 - 32	28.01 \pm .13	1.55	5.53
434	120	20 - 32	27.98 \pm .15	1.67	5.97
442	56	24 - 31	28.54 \pm .20	1.50	5.26
443	244	20 - 38	28.04 \pm .11	1.77	6.31
444	80	20 - 36	27.88 \pm .22	1.97	7.07
452, 454, 462, 463	13	25 - 33	28.22		
453	18	25 - 31	28.56 \pm .39	1.61	5.64
512, 522-524, 531,					
534, 535	14	22 - 30	28.45		
532	31	21 - 32	28.10 \pm .40	2.24	7.97
533	36	24 - 31	28.34 \pm .27	1.59	5.61
541, 542	49	24 - 32	29.41 \pm .27	1.86	6.32
543, 544	27	26 - 39	29.49 \pm .46	2.41	8.17
551-553, 562	9	21 - 30	28.45		
612, 621, 622, 631,					
632, 633, 721, 731	20	20 - 32	28.95 \pm .59	2.62	9.05
641, 642, 741	17	26 - 33	29.98 \pm .51	2.04	6.80

NEGRO - CHEST DEPTH

Chest depth diminishes with rising 3rd component, rises slightly with increasing 1st component, and probably also with increasing 2nd component. The relationships appear to be much the same as those obtained in Whites.

Individual ranges are: Negroes - 10*-29 cm; Whites - 11*-37 cm. The ranges of means are 19.20-23 cm, and 19.36-25.83 cm respectively.

The differences between corresponding body types are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	19.81	+0.21
234	20.45	+0.66
235	20.05	+0.14
324	20.29	-0.07
325	20.19	+0.04
333	20.73	+0.33
334	20.50	+0.17
335	20.36	+0.14
343	21.02	+0.21
344	20.60	+0.09
345	20.25	-0.22
353	20.45	-0.64
424	21.50	+0.60
433	20.87	-0.36
434	21.25	+0.28
442	21.36	-0.11
443	21.09	-0.20
444	20.94	-0.05
453	20.95	-0.37
532	21.39	-0.93
533	21.56	-0.56

There is no consistent difference in chest depth between Negroes and Whites of the same body types. In the lower grades of the 1st component Negroes appear slightly to exceed the Whites, whereas in the 4--'s and 5--'s the slight difference is in favor of the Whites.

*Possibly an error in punching or recording

TABLE C

NEGRO - CHEST DEPTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	57	12 - 23	19.20 ± .28	2.10	10.94
225	64	10 - 28	19.81 ± .29	2.32	11.71
234	26	17 - 22	20.45 ± .27	1.37	6.70
235	35	16 - 22	20.05 ± .27	1.60	7.98
145, 244, 245	9	18 - 22	21.01		
314 - 316, 326	11	17 - 23	19.81		
324	62	16 - 23	20.29 ± .19	1.46	7.20
325	69	17 - 23	20.19 ± .20	1.70	8.42
333	80	16 - 23	20.73 ± .17	1.48	7.14
334	402	16 - 29	20.50 ± .09	1.77	8.63
335	150	13 - 24	20.36 ± .14	1.74	8.55
343	82	17 - 29	21.02 ± .18	1.60	7.46
344	143	17 - 24	20.60 ± .12	1.41	6.84
345	15	18 - 22	20.25 ± .32	1.21	5.98
254, 255, 352, 354, 355, 363, 364, 373	17	18 - 23	20.39		
353	10	17 - 22	20.45 ± .52	1.56	7.53
415, 423, 425	15	19 - 22	20.65		
424	22	19 - 29	21.50 ± .47	2.17	10.09
432, 435	14	18 - 23	21.31		
433	149	15 - 27	20.87 ± .13	1.58	7.57
434	119	16 - 29	21.25 ± .15	1.67	7.86
442	55	18 - 24	21.36 ± .17	1.27	5.95
443	243	17 - 26	21.09 ± .09	1.39	6.59
444	80	16 - 28	20.94 ± .17	1.56	7.45
452, 454, 462, 463	13	18 - 22	21.07		
453	18	18 - 23	20.95 ± .38	1.55	7.40
512, 522-524, 531, 534, 535	14	20 - 23	22.09		
532	31	18 - 24	21.39 ± .26	1.46	6.83
533	36	19 - 24	21.56 ± .22	1.29	5.98
541, 542	49	18 - 26	21.80 ± .21	1.46	6.70
543, 544	27	19 - 25	22.34 ± .25	1.32	5.91
551 - 553, 562	9	20 - 24	22.56		
612, 621, 622, 631, 632, 633, 721, 731	20	17 - 25	23.00 ± .41	1.83	7.96
641, 642, 741	17	19 - 26	22.98 ± .47	1.88	8.18

NEGRO - BI - ILIAC

The only discernible change in bi-iliac diameters in the Negro series is a rise with increasing first component. The situation is practically the same as in Whites.

Individual ranges of bi-iliac are 20-40 cm in Negroes(!!) and 18-39 cm in Whites. The ranges of the means are: Negroes- 27.09-30.90 cm; Whites - 27.24 -34.18 cm.

Mean differences between corresponding body types are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	28.93	+0.90
234	27.60	-0.06
235	27.51	-0.43
324	28.78	+0.49
325	28.64	+0.24
333	28.51	+0.61
334	28.55	+0.42
335	28.28	-0.08
343	28.73	+0.94
344	28.76	+0.55
345	28.05	-0.27
424	29.31	+0.39
433	28.93	+0.30
434	29.31	+0.47
442	28.88	+0.25
443	28.69	+0.36
444	28.79	+0.14
453	28.78	+0.25
532	29.68	+0.21
533	29.56	-0.15
541-2	30.29	+0.67

There is possibly a slight superiority of Negro pelvic breadth over those of Whites, but the differences in means are too small to permit certain conclusions.

TABLE CI

NEGRO - BI-ILIAC

<u>Somatctype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	57	22 - 31	27.99 ± .23	1.71	6.11
225	63	23 - 34	28.93 ± .27	2.18	7.54
234	26	25 - 30	27.60 ± .23	1.41	5.11
235	35	23 - 32	27.51 ± .37	2.16	7.85
145, 244, 245	10	20 - 30	27.65		
314 - 316, 326	11	27 - 31	29.81		
324	63	20 - 31	28.78 ± .27	2.17	7.54
325	69	25 - 31	28.64 ± .18	1.50	5.24
333	80	23 - 33	28.51 ± .20	1.79	6.28
334	405	21 - 34	28.55 ± .07	1.90	6.66
335	151	21 - 33	28.28 ± .15	1.86	6.58
343	83	23 - 33	28.73 ± .21	1.94	6.75
344	145	23 - 39	28.76 ± .18	2.16	7.51
345	15	24 - 31	28.05 ± .49	1.85	6.60
254, 255, 352, 354,					
355, 363, 364, 373	17	23 - 31	28.10		
353	10	26 - 31	28.75 ± .67	2.02	7.03
415, 423, 425	15	25 - 32	29.38		
424	22	26 - 33	29.31 ± .44	2.01	6.86
432, 435	14	25 - 32	27.09		
433	150	20 - 33	28.93 ± .16	2.00	6.91
434	118	24 - 35	29.31 ± .18	1.94	6.62
442	56	24 - 32	28.88 ± .26	1.93	6.68
443	242	23 - 39	28.89 ± .14	2.25	7.79
444	80	24 - 35	28.79 ± .22	1.97	6.84
452, 454, 462, 463	13	24 - 32	28.76		
453	18	24 - 31	28.78 ± .47	1.94	6.74
512, 522-524, 531					
534, 535	14	28 - 35	30.66		
532	31	24 - 40	29.68 ± .52	2.90	9.77
533	36	24 - 33	29.56 ± .34	2.05	6.94
541, 542	49	25 - 34	30.29 ± .36	2.54	8.39
543, 544	27	25 - 36	30.12 ± .49	2.54	8.43
551 - 553, 562	9	25 - 32	30.01		
612, 621, 622, 631,					
632, 633, 721, 731	20	24 - 35	30.90 ± .58	2.58	8.35
641, 642, 741	17	23 - 35	30.04 ± .87	3.50	11.65

NEGRO - LEG LENGTH

The usual White concomitants of leg length change with structural component increments are: rise with the 1st component, fall with the 2nd component, rise with the 3rd component. For the Negro series, the changes are as in Whites.

Individual ranges are 69-101 cm (Whites 65-101 cm). Mean ranges are 82.49-92.55 cm (Whites 78.10 - 90.83 cm). Differences between corresponding body types are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	89.47	+4.60
234	84.30	+2.95
235	87.05	+2.63
333	83.96	+3.96
334	86.07	+3.01
335	88.32	+2.55
343	83.34	+3.97
344	85.23	+2.81
345	88.87	+3.62
353	82.49	+3.60
424	90.02	+4.47
433	84.67	+2.37
434	87.52	+2.80
442	81.64	+2.86
443	83.91	+2.61
444	86.50	+2.69
453	84.14	+3.18
532	83.41	+2.80
533	85.21	+1.64

Obviously, then, Negroes of corresponding body type have much longer legs than Whites.

TABLE CII

NEGRO - LEG LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	75 - 101	88.37 ± .61	5.29	5.99
225	88	79 - 88	89.47 ± .44	4.17	4.66
234	39	76 - 94	84.30 ± .62	3.85	4.57
235	58	78 - 95	87.05 ± .50	3.78	4.34
145, 244, 245	18	81 - 89	85.39		
314 - 316, 326	21	85 - 100	92.55		
324	81	78 - 95	85.86 ± .39	3.53	4.11
325	90	77 - 101	88.66 ± .44	4.21	4.75
333	102	74 - 92	83.96 ± .37	3.70	4.41
334	572	71 - 98	86.07 ± .17	4.05	4.71
335	213	76 - 100	88.32 ± .28	4.04	4.57
343	124	70 - 92	83.34 ± .39	4.34	5.21
344	247	73 - 98	85.23 ± .26	4.04	4.74
345	26	80 - 94	88.87 ± .74	3.69	4.15
254, 255, 352, 354, 355, 363, 364, 373	36	73 - 93	82.42		
353	24	69 - 87	82.49 ± .87	4.16	5.04
415, 423, 425	28	76 - 95	84.81		
424	30	79 - 99	90.02 ± .89	4.90	5.44
432, 435	20	74 - 96	83.85		
433	232	70 - 96	84.67 ± .26	3.95	4.67
434	177	71 - 100	87.52 ± .33	4.41	5.04
442	78	71 - 95	81.64 ± .46	4.02	4.92
443	345	70 - 96	83.91 ± .21	3.82	4.55
444	113	77 - 100	86.50 ± .34	3.65	4.22
452, 454, 462, 463	24	73 - 87	81.87		
453	32	76 - 90	84.14 ± .58	3.28	3.90
512, 522-524, 531, 534, 535	16	75 - 95	87.45		
532	45	73 - 92	83.41 ± .55	3.70	4.44
533	54	77 - 93	85.21 ± .44	3.20	3.76
541, 542	68	73 - 90	83.02 ± .50	4.12	4.96
543, 544	40	78 - 94	86.70 ± .63	3.97	4.58
551 - 553, 562	14	74 - 94	82.81		
612, 621, 622, 631, 632, 633, 721, 731	32	72 - 90	84.17 ± .77	4.35	5.17
641, 642, 741	23	72 - 92	81.36 ± 1.08	5.08	6.24

NEGRO - ARM LENGTH

Arm length naturally increases with the 3rd component. It seems to decrease with rising 2nd component and to fluctuate with rising 1st component. The changes in the 2nd and 3rd components are the same as those found in the Whites, except that arm length fluctuates in the Negro with rising 1st component whereas in Whites it increases.

Individual arm length range in the Negroes is 61-91 cm (Whites 63-99 cm). Mean ranges are 76.39-83.50 cm (Whites 73.87-81.09 cm). Thus the means of Negroes range higher than of Whites. The former are, of course, generally taller. Differences between means of corresponding body types in the two races are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	81.32	+3.41
234	78.53	+2.89
235	79.24	+1.54
324	78.46	+0.89
325	80.93	+2.02
333	77.85	+2.41
334	78.79	+1.82
335	80.24	+1.73
343	77.80	+2.84
344	78.49	+2.03
345	80.76	+2.62
353	77.33	+2.91
424	82.08	+3.55
433	78.40	+1.70
434	80.00	+1.92
442	76.39	+1.47
443	78.01	+2.00
444	78.95	+1.59
453	77.51	+1.88
532	77.67	+2.03
533	78.91	+1.40
541-2	77.77	+2.41

It is thus apparent that Negro arm length substantially exceeds that of Whites of corresponding body type. The arm length excesses of Negroes are vastly greater than their stature excesses.

TABLE CIII

NEGRO - ARM LENGTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	74	70 - 87	80.02 ± .38	3.23	4.04
225	87	70 - 89	81.32 ± .41	3.78	4.65
234	38	72 - 85	78.52 ± .46	2.84	3.62
235	58	70 - 87	79.24 ± .47	3.60	4.54
145, 244, 245	17	76 - 86	79.33		
314 - 316, 326	21	73 - 90	83.50		
324	81	68 - 85	78.46 ± .40	3.62	4.61
325	90	74 - 90	80.93 ± .36	3.43	4.24
333	101	67 - 86	77.85 ± .36	3.58	4.60
334	573	69 - 89	78.79 ± .13	3.31	4.20
335	213	70 - 89	80.24 ± .23	3.30	4.11
343	125	67 - 86	77.80 ± .32	3.52	4.52
344	248	70 - 87	78.49 ± .21	3.29	4.19
345	26	70 - 89	80.76 ± .81	4.06	5.03
254, 255, 352, 354, 355, 363, 364, 373	36	69 - 83	76.87		
353	25	69 - 82	77.33 ± .61	2.99	3.87
415, 423, 425	27	71 - 84	78.49		
424	30	76 - 98	82.08 ± .90	4.91	5.98
432, 435	20	70 - 84	77.95		
433	232	61 - 86	78.40 ± .22	3.27	4.17
434	176	68 - 91	80.00 ± .27	3.63	4.54
442	78	68 - 84	76.39 ± .36	3.20	4.19
443	344	68 - 87	78.01 ± .17	3.12	4.00
444	113	71 - 86	78.95 ± .30	3.22	4.08
452, 454, 462, 463	24	68 - 82	76.37		
453	33	66 - 84	77.51 ± .73	4.17	5.38
512, 522-524, 531, 534, 535	16	72 - 87	79.64		
532	45	62 - 89	77.67 ± .65	4.39	5.65
533	54	73 - 85	78.91 ± .38	2.82	3.57
541, 542	68	63 - 85	77.77 ± .48	3.98	5.12
543, 544	41	74 - 87	80.16 ± .52	3.35	4.18
551-553, 564	14	72 - 82	76.88		
612, 621, 622, 631, 632, 633, 721, 731	32	66 - 91	78.36 ± .77	4.33	5.53
641, 642, 741	23	68 - 85	76.94 ± .87	4.07	5.30

NEGRO - CERVICALE HEIGHT

Naturally, cervicale height (which is height from the 7th cervical spine to the ground) increases with increments of the 3rd component. It decreases somewhat with rise of the 2nd component, but rises also with the 1st component. The situation parallels that in the Whites.

Individual ranges of the measurement are: Negroes - 128* cm to 170 cm; Whites - 123* cm to 178 cm. Mean ranges are 143.15 cm to 157.55 cm (Whites - 141.98-158.47 cm). Mean differences of corresponding types are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	152.60	+3.03
234	146.37	+2.02
235	149.71	+0.64
324	148.41	+0.53
325	153.52	+1.54
333	145.22	+1.88
334	148.86	+1.32
335	152.87	+1.22
343	144.75	+2.16
344	147.99	+0.88
345	151.83	+0.26
353	144.41	+1.93
424	154.78	+3.46
433	147.42	+0.48
434	151.82	+1.27
442	143.15	+0.26
443	146.34	+0.34
444	150.23	+0.72
453	146.61	+0.97
532	146.12	+0.77
533	150.03	+0.29

Negroes thus generally exceed Whites of similar body build in cervicale height.

*Possibly an error in recording or punching

TABLE CIV
NEGRO - CERVICAL HEIGHT

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>		<u>S.D.</u>	<u>C.V.</u>
116 - 226	73	130 - 170	152.11 ±	.90	7.66	5.04
225	88	140 - 163	152.60 ±	.54	5.02	3.29
234	38	133 - 158	146.37 ±	.88	5.45	3.72
235	57	139 - 163	149.71 ±	.69	5.24	3.50
145, 244, 245	19	140 - 156	149.03			
314 - 316, 326	21	146 - 168	157.55			
324	81	136 - 160	148.41 ±	.59	5.28	3.56
325	90	140 - 169	153.52 ±	.61	5.75	3.75
333	101	129 - 162	145.22 ±	.55	5.55	3.82
334	561	134 - 168	148.86 ±	.24	5.57	3.74
335	212	139 - 168	152.87 ±	.41	5.95	3.89
343	122	128 - 160	144.75 ±	.53	5.82	4.02
344	244	132 - 161	147.99 ±	.36	5.65	3.82
345	26	138 - 158	151.83 ±	.98	4.88	3.21
254, 255, 352, 354,						
355, 363, 364, 373	36	135 - 154	145.92			
353	24	129 - 157	144.41 ±	1.16	5.58	3.86
415, 423, 425	28	134 - 161	147.06			
424	30	142 - 164	154.78 ±	1.11	6.07	3.92
432, 435	20	131 - 164	148.15			
433	229	134 - 160	147.42 ±	.33	4.91	3.33
434	170	138 - 168	151.82 ±	.45	5.83	3.84
442	77	131 - 158	143.15 ±	.62	5.46	3.81
443	338	131 - 162	146.34 ±	.30	5.44	3.72
444	111	136 - 167	150.23 ±	.48	5.09	3.39
452, 454, 462, 463	23	135 - 150	144.19			
453	31	136 - 157	146.61 ±	.88	4.89	3.34
512, 522-524, 531,						
534, 535	16	137 - 166	154.26			
532	43	133 - 158	146.12 ±	.97	6.33	4.33
533	53	139 - 160	150.03 ±	.53	4.56	3.04
541, 542	68	131 - 158	146.17 ±	.68	5.63	3.85
543, 544	40	140 - 168	151.90 ±	.88	5.58	3.67
551 - 553, 562	14	135 - 156	144.38			
612, 621, 622, 631,						
632, 633, 721, 731	32	130 - 163	148.42 ±	1.07	6.05	4.08
641, 642, 741	23	133 - 155	145.49 ±	1.34	6.30	4.33

NEGRO - CHEST GIRTH

Chest girth in Negroes shows the usual rise with increasing 1st component, the usual decrement with rising 3rd component, and fluctuation (with probable average rise) when the 2nd component increases.

Tabulated individual ranges are 64-111 cm, and means 83.33-100.54 cm. The lower limits (individual and average) are close to those of Whites, but the maxima are lower owing to the greater number of very fat men in the White series. Differences between Negro and white chest girths in corresponding body types are as follows:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	85.77	-0.01
234	86.55	-0.89
235	84.48	-2.61
324	86.67	-1.74
325	85.86	-1.70
333	88.40	-1.51
334	87.43	-1.79
335	87.02	-1.26
343	89.64	-1.52
345	87.87	-1.91
353	90.45	-2.03
424	91.05	+0.22
433	91.19	-2.36
434	90.59	-0.78
442	92.18	-3.27
443	91.24	-1.97
444	90.15	-1.80
453	92.81	-1.44
532	95.02	-1.94
533	93.90	-2.14
541-2	96.66	-1.46

Thus it appears that with a single unimportant exception Negroes have smaller chest girths than Whites of corresponding body type, although generally the Negroes are taller and heavier.

TABLE CV

NEGRO - CHEST GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	73 - 99	83.33 \pm .73	6.33	7.60
225	87	77 - 95	85.77 \pm .42	3.92	4.57
234	39	79 - 94	86.55 \pm .61	3.82	4.41
235	58	75 - 91	84.48 \pm .47	3.55	4.20
145, 244, 245	19	79 - 95	86.40		
314 - 316, 326	21	77 - 92	85.12		
324	81	77 - 95	86.67 \pm .46	4.16	4.80
325	88	75 - 95	85.86 \pm .41	3.85	4.48
333	101	70 - 99	88.40 \pm .47	4.76	5.38
334	574	68 - 99	87.43 \pm .17	4.08	4.67
335	213	76 - 98	87.02 \pm .28	4.11	4.72
343	124	78 - 105	89.64 \pm .41	4.57	5.10
344	247	64 - 98	88.32 \pm .29	4.53	5.13
345	26	80 - 96	87.87 \pm .66	3.28	3.73
254, 255, 352, 354,					
355, 363, 364, 373	36	81 - 95	89.45		
353	25	75 - 97	90.45 \pm .98	4.80	5.31
415, 423, 425	28	79 - 94	88.49		
424	30	83 - 99	91.05 \pm .75	4.10	4.50
432, 435	20	83 - 99	90.95		
433	232	80 - 108	91.19 \pm .29	4.35	4.77
434	177	80 - 104	90.59 \pm .34	4.52	4.99
442	78	82 - 102	92.18 \pm .50	4.42	4.79
443	347	77 - 105	91.24 \pm .23	4.31	4.72
444	112	80 - 101	90.15 \pm .41	4.33	4.80
452, 454, 462, 463	24	86 - 102	93.37		
453	33	82 - 101	92.81 \pm .87	4.98	5.37
512, 522-524, 531,					
534, 535	16	92 - 101	97.51		
532	45	84 - 104	95.09 \pm .69	4.65	4.89
523	55	83 - 103	93.90 \pm .52	3.87	4.12
541, 542	67	85 - 111	96.66 \pm .63	5.19	5.37
543, 544	41	86 - 104	95.79 \pm .60	3.84	4.01
551-553, 562	14	88 - 103	96.45		
612, 621, 622, 631,					
632, 633, 721, 731	32	91 - 111	100.23 \pm .93	5.25	5.24
641, 642, 741	23	94 - 110	100.54 \pm .99	4.63	4.61

NEGRO - WAIST GIRTH

Waist girth shows in Negroes the same changes with component rises as in Whites: increments with rising 1st component, decrements with rising 3rd component, less marked decrements with rising 2nd component.

Individual tabulated ranges are 57-112 cm, and mean ranges 68.97-94.01 cm. These fall within the white limits. Differences of waist girth for the same body types between the two races are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	71.61	+0.99
234	70.45	-0.15
235	69.33	-1.36
324	74.04	-0.53
325	73.54	+0.54
333	74.97	+0.47
334	73.48	-0.45
335	72.56	-0.27
343	74.18	-0.32
344	72.83	-0.88
345	72.33	-0.40
353	74.12	-0.69
424	78.45	+0.41
433	78.31	-1.30
434	77.23	-0.28
442	78.31	-2.68
443	76.84	-1.45
444	75.73	-0.87
453	77.36	-0.72
532	85.76	+0.01
533	83.80	-0.08

While Negro waist girths tend to fall somewhat below those of Whites of the same body type, the differences are not usually large and sometimes occur in the opposite direction.

TABLE CVI

NEGRO - WAIST GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	61 - 76	68.97 ± .41	3.53	5.12
225	87	57 - 80	71.61 ± .43	4.00	5.59
234	39	63 - 78	70.45 ± .59	3.70	5.25
235	57	60 - 74	69.33 ± .45	3.41	4.92
145, 244, 245	19	65 - 77	70.50		
314 - 316, 326	21	66 - 81	72.26		
324	81	64 - 84	74.04 ± .39	3.51	4.74
325	89	64 - 93	73.54 ± .43	4.01	5.45
333	101	64 - 89	74.97 ± .42	4.22	5.63
334	572	63 - 99	73.48 ± .16	3.89	5.29
335	213	61 - 85	72.56 ± .23	3.36	4.63
343	125	64 - 86	74.18 ± .34	3.75	5.06
344	247	57 - 87	72.83 ± .24	3.81	5.23
345	26	68 - 82	72.33 ± .52	2.61	3.61
254, 255, 352, 354, 355, 363, 364, 373	36	63 - 80	73.28		
353	25	67 - 97	74.12 ± .78	3.73	5.03
415, 423, 425	27	70 - 84	77.82		
424	30	72 - 88	78.45 ± .79	4.34	5.53
432, 435	20	69 - 89	78.30		
433	231	67 - 97	78.31 ± .27	4.14	5.29
434	177	68 - 94	77.23 ± .30	4.05	5.24
442	77	71 - 88	78.31 ± .48	4.20	5.36
443	345	62 - 94	76.84 ± .22	4.08	5.31
444	112	67 - 86	75.73 ± .31	3.32	4.38
452, 454, 462, 463	24	70 - 87	78.08		
453	33	67 - 86	77.36 ± .73	4.18	5.40
512, 522-524, 531, 534, 535	15	82 - 97	88.73		
532	45	76 - 102	85.76 ± .84	5.61	6.54
533	55	72 - 91	83.80 ± .58	4.29	5.12
541, 542	68	74 - 97	84.80 ± .61	5.02	5.92
543, 544	41	68 - 95	82.33 ± .85	5.45	6.62
551 - 553, 562	14	74 - 90	82.52		
612, 621, 622, 631, 632, 633, 721, 731	32	84 - 112	94.01 ± 1.16	6.54	6.96
641, 642, 741	23	85 - 105	92.71 ± .99	4.67	5.04

NEGRO - HIP CIRCUMFERENCE

Hip circumference as in Whites rises with increase of the 1st component and drops with increase of the 3rd component. The individual range is 71-118 cm (Whites - 67-127 cm) and the range of the means is 85.32-104.36 cm (Whites - 85.34-109.66 cm). Typical differences are:

<u>Negro</u>	<u>Mean</u>	<u>Excess</u>
225	87.63	+0.08
234	87.19	-0.80
235	86.27	-1.07
324	89.19	-1.38
325	89.83	+0.32
343	90.90	+0.51
344	89.21	-0.94
345	88.07	-1.71
353	90.89	+0.13
424	94.83	+0.95
433	93.67	-0.77
434	92.58	-0.62
444	91.68	-0.90
453	93.30	-0.35
532	97.21	-0.94
533	97.78	+0.10

From the above it is clear that Negroes have only a slight tendency to fall below Whites of the same body type in hip circumference.

TABLE CVII

NEGRO - HIP GIRTH

<u>Somatotype</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
116 - 226	75	77 - 95	85.32 ± .43	3.69	4.3
225	87	79 - 94	87.63 ± .36	3.38	3.8
234	39	80 - 96	87.19 ± .59	3.68	4.2
235	57	77 - 95	86.27 ± .49	3.67	4.2
145, 244, 245	19	82 - 96	86.87		
314 - 316, 326	21	80 - 98	88.50		
324	81	80 - 102	89.19 ± .46	4.12	4.6
325	89	81 - 98	89.83 ± .39	3.64	4.0
333	101	77 - 100	90.28 ± .42	4.27	4.7
334	572	71 - 99	89.33 ± .17	4.07	4.5
335	212	78 - 98	88.51 ± .28	4.05	4.5
343	125	82 - 99	90.90 ± .35	3.93	4.3
344	243	78 - 99	89.21 ± .24	3.81	4.2
345	26	82 - 93	88.07 ± .63	3.13	3.5
353	25	83 - 99	90.89 ± .70	3.44	3.7
254, 255, 352, 354,					
355, 363, 364, 373	36	79 - 96	88.84		
415, 423, 425	28	80 - 104	91.88		
424	32	85 - 107	94.83 ± .92	5.21	5.4
433	231	77 - 104	93.67 ± .27	4.03	4.3
434	174	83 - 103	92.58 ± .32	4.23	4.5
432, 435	20	80 - 100	92.85		
442	78	72 - 102	93.39 ± .52	4.60	4.9
443	348	80 - 104	93.10 ± .23	4.21	4.5
444	111	80 - 103	91.68 ± .33	3.49	3.8
452, 454, 462, 463	27	87 - 102	95.26		
453	33	74 - 106	93.30 ± .78	4.46	4.7
512, 522-524, 531,					
534, 535	16	91 - 105	100.33		
532	45	76 - 110	97.21 ± .84	5.61	5.7
533	55	86 - 106	97.78 ± .52	3.86	3.9
541, 542	68	88 - 109	98.83 ± .58	4.80	4.8
543, 544	40	88 - 109	97.93 ± .65	4.10	4.1
551 - 553, 562	13	91 - 102	97.68		
612, 621, 622, 631,					
632, 633, 721, 731	32	96 - 118	103.98 ± .87	4.93	4.7
641, 642, 741	23	96 - 111	104.36 ± .91	4.35	4.1

THE METRIC FEATURES OF SEPARATE BODY BUILD GROUPS
AS ENTITIES AND THEIR COMPARISON

NEGRO

I. THIN, NON-MUSCULAR, ELONGATE

116-226, 225

This small group includes a combined subgroup (116-226) and the single body type 225. In spite of its small numbers (154) it is nearly twice as numerous proportionately as the corresponding group of White soldiers (5.05% as against 2.94%). The only proper comparison between the races is the 225 subgroup. The Negroes of this type are slightly younger on the average, more than seven lbs heavier, about 2 1/2 cm taller, with slightly smaller excess of torso length, broader shoulders, about the same chest breadth, but relatively a little deeper in chest, a little broader in the pelvis, much longer in arms and legs, about the same in chest girth and hip girth, but slightly larger in the waist. These are all, presumably, racial differences (except age).

The sociological correlates of Negro body types are not as clearly marked as those of Whites and will not be recapitulated here (cf. 1948 report).

The combined Negro 116-226 subgroup is about the same average age as the 225, but it is skinnier and a little shorter. It falls below the 225 group in every measurement.

TABLE CVIII

NEGRO I Thin, non-muscular, elongate

116 -226

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	72	17 - 42	22.50 \pm .55	4.65	20.67
Weight	75	100 -172	131.13 \pm 1.55	13.45	10.26
Stature	75	151 -194	176.24 \pm .89	7.73	4.39
Torso Length	58	49 - 62	55.81 \pm .39	2.99	5.36
Bideltoid	75	39 - 54	44.08 \pm .25	2.20	4.99
Chest Breadth	57	18 - 32	26.91 \pm .26	1.95	7.25
Chest Depth	57	12 - 23	19.20 \pm .28	2.10	10.94
Bi-iliac	57	22 - 31	27.99 \pm .23	1.71	6.11
Leg Length	75	75 -101	88.37 \pm .61	5.29	5.99
Arm Length	74	70 - 87	80.02 \pm .38	3.23	4.04
Cervicale	73	130 -170	152.11 \pm .90	7.66	5.04
Chest Girth	75	73 - 99	83.33 \pm .73	6.33	7.60
Waist Girth	75	61 - 76	68.97 \pm .41	3.53	5.12
Hip Girth	75	77 - 95	85.32 \pm .43	3.69	4.32

TABLE CIX

NEGRO I Thin, non-muscular, elongate

225

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	82	19 - 36	22.15 \pm .42	3.80	17.16
Weight	88	110 -169	139.33 \pm 1.26	11.80	8.47
Stature	88	163 -188	176.81 \pm .55	5.15	2.91
Torso Length	64	49 - 60	56.00 \pm .33	2.64	4.71
Bideltoid	88	40 - 48	44.69 \pm .18	1.69	3.78
Chest Breadth	64	20 - 30	27.17 \pm .28	2.20	8.10
Chest Depth	64	10 - 28	19.81 \pm .29	2.32	11.71
Bi-iliac	63	23 - 34	28.93 \pm .27	2.18	7.54
Leg Length	88	79 - 88	89.47 \pm .44	4.17	4.66
Arm Length	87	70 - 89	81.32 \pm .41	3.78	4.65
Cervicale	88	140 -163	152.60 \pm .54	5.02	3.29
Chest Girth	87	77 - 95	85.77 \pm .42	3.92	4.57
Waist Girth	87	57 - 80	71.61 \pm .43	4.00	5.59
Hip Girth	87	79 - 94	87.63 \pm .36	3.38	3.86

NEGRO

II. THIN, SUBMEDIUM MUSCULATURE

234, 235

This group is also very small and includes only two body types. Yet it is proportionately more numerous in the Negro than in the White sample (3.28% as against 2.27%). There are only 91 men in the total of the two subgroups. The 235's are younger than the 234's, but both are older by a year or more than the Thin, non-muscular elongate group previously discussed. The 234's are somewhat heavier and considerably shorter than the 235's. Both are shorter and lighter than the 225's. The 234's show the expected superiorities in transverse diameters and girths over the 235's, accompanied by smaller vertical dimensions.

The comparison of the 235's with the 225's is, of course, interesting. It is a curious fact that the former group falls slightly below the 225's in every measurement except chest depth - vertical and transverse diameters and girths. One would expect shorter vertical dimensions but larger transverse and girth measurements in the more mesomorphic 235's.

The Negro 234's differ from the White 234's in being older, heavier, and slightly taller and they exhibit the usual racial differences from Whites in limb lengths, torso lengths, chest girth, etc.

The Negro 235's are very close to the Whites with the exception of racial differences just mentioned.

TABLE CX

NEGRO II Thin, sub-med.musculature

234

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	39	19 - 35	24.15 \pm .74	4.60	19.05
Weight	39	105 - 172	137.38 \pm 2.08	13.00	9.46
Stature	39	156 - 181	170.19 \pm .88	5.49	3.23
Torso Length	27	47 - 60	54.67 \pm .59	3.00	5.49
Bideltoid	38	39 - 47	44.56 \pm .31	1.91	4.29
Chest Breadth	26	24 - 38	27.83 \pm .61	3.06	11.00
Chest Depth	26	17 - 22	20.45 \pm .27	1.37	6.70
Bi-iliac	26	25 - 30	27.60 \pm .28	1.41	5.11
Leg Length	39	76 - 94	84.30 \pm .62	3.85	4.57
Arm Length	38	72 - 85	78.53 \pm .46	2.84	3.62
Cervicale	38	133 - 158	146.37 \pm .88	5.45	3.72
Chest Girth	39	79 - 94	86.55 \pm .61	3.82	4.41
Waist Girth	39	63 - 78	70.45 \pm .59	3.70	5.25
Hip Girth	39	80 - 96	87.19 \pm .59	3.68	4.22

TABLE CXI

NEGRO II Thin, sub-med.musculature

235

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	52	18 - 37	23.25 \pm .62	4.45	19.14
Weight	58	111 - 161	134.62 \pm 1.64	12.50	9.29
Stature	58	162 - 185	173.79 \pm .72	5.45	3.14
Torso Length	36	47 - 65	55.78 \pm .53	3.17	5.68
Bideltoid	58	32 - 46	43.78 \pm .32	2.44	5.57
Chest Breadth	35	22 - 28	26.82 \pm .26	1.52	5.67
Chest Depth	35	16 - 22	20.05 \pm .27	1.60	7.98
Bi-iliac	35	23 - 32	27.51 \pm .37	2.16	7.85
Leg Length	58	78 - 95	87.05 \pm .50	3.78	4.34
Arm Length	58	70 - 87	79.24 \pm .47	3.60	4.54
Cervicale	57	139 - 163	149.71 \pm .69	5.24	3.50
Chest Girth	58	75 - 91	84.48 \pm .47	3.55	4.20
Waist Girth	57	60 - 74	69.33 \pm .45	3.41	4.92
Hip Girth	57	77 - 95	86.27 \pm .49	3.67	4.25

NEGRO

III. THIN, MEDIUM MUSCULATURE

145, 244, 245

This small group consists of a mixed bag of three body types totalling only nineteen men. The average age is nearly 27 years. These men, higher in the second component, are older, heavier, and taller. They have longer torsos and bigger chests than the 234's and 235's and shorter legs than the 235's; otherwise, much the same measurements. There is no exactly comparable White group.

TABLE CXII

NEGRO III Thin, med. musculature

145, 244, 245

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	18	19 - 34	26.94	---	---
Weight	19	120 - 164	139.06	---	---
Stature	19	165 - 196	174.61	---	---
Torso Length	10	53 - 61	56.55	---	---
Bideltoid	18	41 - 47	44.95	---	---
Chest Breadth	10	17 - 28	26.15	---	---
Chest Depth	9	18 - 22	21.01	---	---
Bi-iliac	10	20 - 30	27.65	---	---
Leg Length	18	81 - 89	85.39	---	---
Arm Length	17	76 - 86	79.33	---	---
Cervicale	19	140 - 156	149.03	---	---
Chest Girth	19	79 - 95	86.40	---	---
Waist Girth	19	65 - 77	70.50	---	---
Hip Girth	19	82 - 96	86.87	---	---

NEGRO

IV. SUBMEDIUM, NON-MUSCULAR, MEDIUM AND ELONGATE

314-316, 326; 324, 325

This physically somewhat inferior class comprises 6.23% of the Negro sample, as against 5.45% of the Whites. The combined subgroup (314-316, 326) consists of only 24 men - too few for extensive analysis. They are very tall, light, and poorly muscled, but not thin. They have rather broad pelvis, but small waist girths. Generally speaking, the 31-'s and 32-'s include many gymandromorphic individuals, but this series has not yet been studied intensively for such types, so the frequency of gymandromorpha has not yet been determined.

The whole group consists of men of young mean age (22.05 years to 22.70 years in averages). The 32-'s are considerably heavier than the 31-'s and shorter and generally more robust in build (though not "good").

Between the 324's and the 325's there are the usual differences associated with change of the 3rd component. The 325's are a good deal taller and somewhat more slender than the 324's.

The metric differences between Negro 324's and White 324's are the same as those previously catalogued for other body build types - essentially racial differences. The same is true of the comparisons of 325's in the two races.

TABLE CXIII

NEGRO IV Sub-med., non-musc., med. & elongate

314 - 316, 326

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	24	18 - 25	22.29	---	---
Weight	21	124 - 161	146.14	---	---
Stature	21	172 - 192	182.21	---	---
Torso Length	11	55 - 62	57.90	---	---
Bideltoid	21	39 - 46	43.88	---	---
Chest Breadth	11	26 - 29	27.36	---	---
Chest Depth	11	17 - 23	19.81	---	---
Bi-iliac	11	27 - 31	29.81	---	---
Leg Length	21	85 - 100	92.55	---	---
Arm Length	21	73 - 90	83.50	---	---
Cervicale	21	146 - 168	157.55	---	---
Chest Girth	21	77 - 92	85.12	---	---
Waist Girth	21	66 - 81	72.26	---	---
Hip Girth	21	80 - 98	88.50	---	---

TABLE CXIV

NEGRO IV Sub-med., non-musc., med. & elongate
324

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	79	19- 42	22.70 ± .51	4.55	20.04
Weight	81	120-182	143.68 ± 1.48	13.35	9.29
Stature	81	160-189	172.23 ± .61	5.48	3.18
Torso Length	63	48- 63	55.59 ± .35	2.74	4.93
Bideltoid	81	39- 47	44.45 ± .21	1.89	4.25
Chest Breadth	62	24- 32	27.29 ± .20	1.60	5.85
Chest Depth	62	16- 23	20.29 ± .19	1.46	7.20
Bi-iliac	63	20- 31	28.78 ± .27	2.17	7.54
Leg Length	81	78- 95	85.86 ± .39	3.53	4.11
Arm Length	81	68- 85	78.46 ± .40	3.62	4.61
Cervicale	81	136-163	148.41 ± .59	5.28	3.56
Chest Girth	81	77- 95	86.67 ± .46	4.16	4.80
Waist Girth	81	64- 84	74.04 ± .39	3.51	4.74
Hip Girth	81	30-102	89.19 ± .46	4.12	4.62

TABLE CXV

NEGRO IV Sub-med., non-musc., med. & elongate

325

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	87	18- 31	22.05 ± .38	3.55	16.10
Weight	90	112-189	145.32 ± 1.50	14.25	9.81
Stature	90	163-195	178.09 ± .61	5.83	3.27
Torso Length	69	48- 65	57.32 ± .41	3.39	5.91
Bideltoid	90	32- 49	43.45 ± .23	2.18	4.94
Chest Breadth	69	21- 29	26.94 ± .17	1.41	5.23
Chest Depth	69	17- 23	20.19 ± .20	1.70	8.42
Bi-iliac	69	25- 31	28.64 ± .18	1.50	5.24
Leg Length	90	77-101	88.66 ± .44	4.21	4.75
Arm Length	90	74- 90	80.93 ± .36	3.43	4.24
Cervicale	90	140-169	153.52 ± .61	5.75	3.75
Chest Girth	88	75- 95	85.86 ± .41	3.85	4.48
Waist Girth	89	64- 93	73.54 ± .43	4.01	5.45
Hip Girth	89	81- 98	89.83 ± .39	3.64	4.05

NEGRO

V. SUBMEDIUM, SUBMEDIUM MUSCULATURE

333, 334, 335

This group of men of submedium fat balanced with sub-medium musculature is by far the largest body build class in Negroes (27.86% of the series as contrasted with 14.70% of the White sample).

The differences between the Negro 333's, 334's, and 335's are those which regularly occur with rise of the 3rd component - slightly decreasing age, increasing stature, and attenuation.

In comparison with Whites it is interesting to note that this class in Negroes includes proportionately far more 333's and no 336's at all. The modal body type in this class is 334 in Negroes, 335 in Whites.

The regular racial differences are found between Negro and White 333's, 334's, and 335's.

TABLE CXVI

NEGRO V Sub-med., sub-med. musculature

333

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	97	18- 39	23.20 ± .43	4.20	18.10
Weight	102	108-180	148.60 ± 1.37	13.85	9.32
Stature	102	152-181	168.21 ± .52	5.29	3.14
Torso Length	79	49- 61	55.39 ± .30	2.65	4.78
Bideltoid	102	41- 49	45.27 ± .16	1.62	3.58
Chest Breadth	80	24- 36	27.88 ± .18	1.61	5.77
Chest Depth	80	16- 23	20.73 ± .17	1.48	7.14
Bi-iliac	80	23- 33	28.51 ± .20	1.79	6.28
Leg Length	102	74- 92	83.96 ± .37	3.70	4.41
Arm Length	101	67- 86	77.85 ± .36	3.58	4.60
Cervicale	101	129-162	145.22 ± .55	5.55	3.82
Chest Girth	101	70- 99	88.40 ± .47	4.76	5.38
Waist Girth	101	64- 89	74.97 ± .42	4.22	5.63
Hip Girth	101	77-100	90.28 ± .42	4.27	4.73

TABLE CXVII

NEGRO V Sub-med., sub-med. musculature

334

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	536	17 - 40	22.35 \pm .17	4.00	17.90
Weight	575	112 - 185	146.11 \pm .58	13.85	9.48
Stature	575	157 - 188	172.74 \pm .24	5.64	3.27
Torso Length	407	49 - 63	55.73 \pm .14	2.73	4.90
Bideltoid	573	40 - 51	44.92 \pm .07	1.77	3.94
Chest Breadth	404	20 - 36	27.47 \pm .07	1.57	5.72
Chest Depth	402	16 - 29	20.50 \pm .09	1.77	8.63
Bi-iliac	405	21 - 34	28.55 \pm .09	1.90	6.66
Leg Length	572	71 - 98	86.07 \pm .17	4.05	4.71
Arm Length	573	69 - 89	78.79 \pm .13	3.31	4.20
Cervicale	561	134 - 168	148.86 \pm .24	5.57	3.74
Chest Girth	574	68 - 99	87.43 \pm .17	4.08	4.67
Waist Girth	572	63 - 99	73.48 \pm .16	3.89	5.29
Hip Girth	572	71 - 99	89.33 \pm .17	4.07	4.56

TABLE CXVIII

NEGRO V Sub-med., sub-med. musculature

335

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	204	17 - 38	22.60 \pm .28	4.00	17.70
Weight	213	116 - 187	144.98 \pm .98	14.30	9.86
Stature	213	164 - 194	177.54 \pm .41	6.02	3.39
Torso Length	151	48 - 65	56.85 \pm .27	3.31	5.82
Bideltoid	212	39 - 49	44.70 \pm .13	1.89	4.23
Chest Breadth	151	22 - 37	27.42 \pm .14	1.74	6.35
Chest Depth	150	13 - 24	20.36 \pm .14	1.74	8.55
Bi-iliac	151	21 - 33	28.28 \pm .15	1.86	6.58
Leg Length	213	76 - 100	88.32 \pm .28	4.04	4.57
Arm Length	213	70 - 89	80.24 \pm .23	3.30	4.11
Cervicale	212	139 - 168	152.87 \pm .41	5.95	3.89
Chest Girth	213	76 - 98	87.02 \pm .28	4.11	4.72
Waist Girth	213	61 - 85	72.56 \pm .23	3.36	4.63
Hip Girth	212	78 - 98	88.51 \pm .28	4.05	4.58

NEGRO

VI. SUBMEDIUM, MEDIUM MUSCULATURE

343, 344, 345

This group of spare men of average muscularity constitutes 12.42% of the Negro sample, but only 6.86% of the Whites. The 4 in the second component carries with it, as usual, mean ages in each body type higher than those associated with 1's, 2's, or even 3's. In this case the Negro 34-⁴s all exceed the mean age of 23 years.

Weight diminishes with rising 3rd component in this group; stature increases; girths and horizontal diameters diminish. In short, between 343's, 344's, and 345's there are the regular differences which are nearly invariable in groups of body types when the first two components are held constant and the third increased.

The corresponding three body types in Whites average in each case more than one year older and they are shorter (except the 345's). They differ from the Negroes in the usual racial characteristics.

TABLE CXIX

NEGRO VI Sub-med., med. musculature

343

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	122	17 - 36	23.15 ± .35	3.85	16.63
Weight	125	112 - 190	150.98 ± 1.38	15.40	10.20
Stature	125	150 - 181	168.58 ± .52	5.85	3.47
Torso Length	84	47 - 61	55.02 ± .29	2.61	4.74
Bideltoid	125	40 - 50	45.73 ± .17	1.88	4.11
Chest Breadth	83	21 - 36	28.00 ± .22	2.00	7.14
Chest Depth	82	17 - 29	21.02 ± .18	1.60	7.46
Bi-iliac	83	23 - 33	28.73 ± .21	1.94	6.75
Leg Length	124	70 - 92	83.34 ± .39	4.34	5.21
Arm Length	125	67 - 86	77.80 ± .32	3.52	4.52
Cervicals	122	126 - 160	144.75 ± .53	5.62	4.02
Chest Girth	124	78 - 105	89.64 ± .41	4.57	5.10
Waist Girth	125	64 - 86	74.18 ± .34	3.75	5.06
Hip Girth	125	82 - 99	90.90 ± .35	3.93	4.32

TABLE CXX

NEGRO VI Sub-med., med. musculature

344

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	231	18 - 38	23.55 \pm .26	4.00	16.99
Weight	248	112 - 184	147.56 \pm .88	13.85	9.39
Stature	248	156 - 186	172.35 \pm .36	5.74	3.27
Torso Length	143	49 - 62	55.85 \pm .22	2.67	4.78
Bideltoid	246	40 - 50	45.45 \pm .12	1.88	4.14
Chest Breadth	145	23 - 31	27.59 \pm .12	1.39	5.04
Chest Depth	143	17 - 24	20.60 \pm .12	1.41	6.84
Bi-iliac	145	23 - 39	28.76 \pm .18	2.16	7.51
Leg Length	247	73 - 98	85.23 \pm .26	4.04	4.74
Arm Length	248	70 - 87	78.49 \pm .21	3.29	4.19
Cervicale	244	132 - 161	147.99 \pm .36	5.65	3.82
Chest Girth	247	64 - 98	88.32 \pm .29	4.53	5.13
Waist Girth	247	57 - 87	72.83 \pm .24	3.81	5.23
Hip Girth	243	78 - 99	89.21 \pm .24	3.81	4.27

TABLE CXXI

NEGRO VI Sub-med., med. musculature

345

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	26	17 - 40	23.10 \pm .99	5.05	21.86
Weight	26	120 - 175	146.41 \pm 2.47	12.35	8.44
Stature	26	166 - 184	176.91 \pm .94	4.69	2.65
Torso Length	15	54 - 62	57.65 \pm .66	2.46	4.27
Bideltoid	26	42 - 48	45.60 \pm .37	1.85	4.06
Chest Breadth	15	25 - 29	27.58 \pm .28	1.06	3.84
Chest Depth	15	18 - 22	20.25 \pm .32	1.21	5.98
Bi-iliac	15	24 - 31	28.05 \pm .49	1.85	6.60
Leg Length	26	80 - 94	88.87 \pm .74	3.69	4.15
Arm Length	26	70 - 89	80.76 \pm .81	4.06	5.03
Cervicale	26	138 - 158	151.83 \pm .98	4.88	3.21
Chest Girth	26	80 - 96	87.87 \pm .66	3.28	3.73
Waist Girth	26	68 - 82	72.33 \pm .52	2.61	3.61
Hip Girth	26	82 - 93	88.07 \pm .63	3.13	3.55

NEGRO

VII. SUBMEDIUM, MUSCULAR

353, (25's, 35's, 36's, 37's)

The small and heterogeneous group comprises only 1.80% of Negroes as compared with 2.38% of Whites. In the Negroes the only body type sufficiently numerous to be analyzed by itself is 353 (26 persons). These 353 Negroes are older by two years than the 343's, slightly heavier, and about the same height. They are somewhat longer in the torso and shorter in the legs than the 343's, but do not clearly exceed them in other measurements.

Compared with White 353's the Negroes show the usual racial divergences. They exceed the Whites in every measurement except torso length and chest diameters and girth.

The mixed subgroup of 25's, 35's, 36's, and 37's includes only 36 men of varying 3rd component values. It is worth while to note here only that they are on the average 27.36 years old (a high mean age for these series) and that they are lighter, taller, and inferior in breadth and girth dimensions to the 353's.

TABLE CXXII

NEGRO VII Sub-medium, muscular

353

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	26	19 - 37	25.20 \pm 1.02	5.20	20.63
Weight	25	118 - 190	152.18 \pm 3.18	15.57	10.23
Stature	25	151 - 182	168.61 \pm 1.26	6.15	3.65
Torso Length	10	52 - 59	55.75 \pm .78	2.35	4.21
Bideltoid	25	42 - 49	46.09 \pm .38	1.87	4.06
Chest Breadth	10	26 - 31	27.85 \pm .51	1.52	5.46
Chest Depth	10	17 - 22	20.45 \pm .52	1.56	7.63
Bi-iliac	10	26 - 31	28.75 \pm .67	2.02	7.03
Leg Length	24	69 - 87	82.49 \pm .87	4.16	5.04
Arm Length	25	69 - 82	77.33 \pm .61	2.99	3.87
Cervicale	24	129 - 157	144.41 \pm 1.16	5.58	3.86
Chest Girth	25	75 - 97	90.45 \pm .98	4.80	5.31
Waist Girth	25	67 - 97	74.12 \pm .78	3.73	5.03
Hip Girth	25	83 - 99	90.89 \pm .70	3.44	3.78

TABLE CXXIII

NEGRO VII Sub-medium, muscular

254, 255, 352, 354,
355, 363, 364, 373

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	36	19 - 34	27.36	---	---
Weight	36	114 - 170	146.43	---	---
Stature	36	159 - 178	169.64	---	---
Torso Length	17	51 - 60	55.04	---	---
Bideltoid	36	39 - 48	45.59	---	---
Chest Breadth	17	25 - 32	27.80	---	---
Chest Depth	17	18 - 23	20.39	---	---
Bi-iliac	17	23 - 31	28.10	---	---
Leg Length	36	73 - 93	82.42	---	---
Arm Length	36	69 - 83	76.87	---	---
Cervicale	36	135 - 154	145.92	---	---
Chest Girth	36	81 - 95	89.45	---	---
Waist Girth	36	63 - 80	73.28	---	---
Hip Girth	36	79 - 96	88.84	---	---

NEGRO

VIII. MEDIUM PLUMP, NON-MUSCULAR 415, 423, 425; 424;

This group of poor physiques constitutes only 1.87% of the Negro sample as against 3.05% of the Whites. There are two small combined subgroups, and one subgroup consisting of a single body type (424). The latter is the only subgroup that can be compared profitably with the Whites. The Negro and White 424's are about the same average age, but the Negroes average 8.46 lbs heavier, 2.94 cm taller, and exceed the Whites in every dimension except Torso lengths.

The usual racial differences in body proportions are evident.

TABLE CXXIV

NEGRO VIII Medium plump, non-muscular
415, 423, 425

Measurement	No.	Range	Mean	S.D.	C.V.
Age	25	18-33	23.70	---	---
Weight	28	132-175	155.30	---	---
Stature	28	157-188	171.34	---	---
Torso Length	15	49-66	55.05	---	---
Bideltoid	27	41-48	45.30	---	---
Chest Breadth	15	25-32	27.85	---	---
Chest Depth	15	19-22	20.65	---	---
Bi-iliac	15	25-32	29.38	---	---
Leg Length	28	76-95	84.81	---	---
Arm Length	27	71-84	78.49	---	---
Cervicale	28	134-161	147.06	---	---
Chest Girth	28	79-94	88.49	---	---
Waist Girth	27	70-84	77.82	---	---
Hip Girth	28	80-104	91.88	---	---

TABLE CXXV

NEGRO VIII Medium plump, non-muscular
424

Measurement	No.	Range	Mean	S.D.	C.V.
Age	32	19-36	23.30± .83	4.70	20.17
Weight	30	131-185	162.91± 2.95	16.15	9.91
Stature	30	164-188	178.75± 1.11	6.09	3.41
Torso Length	22	53-59	57.00± .38	1.74	3.05
Bideltoid	30	39-47	45.28± .35	1.92	4.24
Chest Breadth	22	25-37	28.13± .52	2.38	8.46
Chest Depth	22	19-29	21.50± .47	2.17	10.09
Bi-iliac	22	26-33	29.31± .44	2.01	6.86
Leg Length	30	79-99	90.02± .89	4.90	5.44
Arm Length	30	76-98	82.08± .90	4.91	5.98
Cervicale	30	142-164	154.78± 1.11	6.07	3.92
Chest Girth	30	83-99	91.05± .75	4.10	4.50
Waist Girth	30	72-88	78.45± .79	4.34	5.53
Hip Girth	32	85-107	94.83± .92	5.21	5.49

NEGRO

IX. MEDIUM PLUMP, SUBMEDIUM MUSCULATURE

432,433,434,435

This group which is the mode in Whites (17.70%) ranks only third in the Negro sample with 13.44%. In the Negroes it consists of only two body builds, 433 and 434, aside from an insignificant combined subgroup (432,435) too small for full analysis.

The Negro 433's differ from the 434's in being older, shorter, and stockier - usual differences between lower and higher 3rd components.

The Negro 433's differ from the White 433's in the usual ways, with the exception of stature which is the same in both groups, whereas it is usually higher in the Negro body types. The standard racial differences are also found between Negro and White 434's.

TABLE CXXVI

NEGRO IX Medium plump, sub-med. musc.

432,435

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	20	19-32	23.00	---	---
Weight	20	129-188	156.98	---	---
Stature	20	155-190	172.10	---	---
Torso Length	14	48-66	57.02	---	---
Bideltoid	20	43-50	45.85	---	---
Chest Breadth	14	25-29	27.59	---	---
Chest Depth	14	18-23	21.31	---	---
Bi-iliac	14	25-32	27.09	---	---
Leg Length	20	74-96	83.85	---	---
Arm Length	20	70-84	77.95	---	---
Cervicale	20	131-164	148.15	---	---
Chest Girth	20	83-99	90.95	---	---
Waist Girth	20	69-89	78.30	---	---
Hip Girth	20	80-100	92.85	---	---

TABLE CXXVII

NEGRO IX Medium plump, sub-med. musc.

433

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	218	17-37	24.10 \pm .30	4.40	18.26
Weight	231	111-201	158.72 \pm .92	14.00	8.82
Stature	232	152-186	171.04 \pm .34	5.21	3.05
Torso Length	150	49-64	55.56 \pm .21	2.53	4.55
Bideltoid	229	41-50	45.91 \pm .12	1.75	3.81
Chest Breadth	150	21-32	28.01 \pm .13	1.55	5.53
Chest Depth	149	15-27	20.87 \pm .13	1.58	7.57
Bi-iliac	150	20-33	28.93 \pm .16	2.00	6.91
Leg Length	232	70-96	84.67 \pm .26	3.95	4.67
Arm Length	232	61-86	78.40 \pm .22	3.27	4.17
Cervicale	229	134-160	147.42 \pm .33	4.91	3.33
Chest Girth	232	80-108	91.19 \pm .29	4.35	4.77
Waist Girth	231	67-97	78.31 \pm .27	4.14	5.29
Hip Girth	231	77-104	93.67 \pm .27	4.03	4.30

TABLE CXXVIII

NEGRO IX Medium plump, sub-med. musc.

434

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	167	17-41	23.35 \pm .39	5.05	21.63
Weight	177	123-211	158.83 \pm 1.20	16.00	10.07
Stature	177	162-191	176.17 \pm .43	5.69	3.23
Torso Length	119	47-64	56.79 \pm .28	3.01	5.30
Bideltoid	176	40-49	45.46 \pm .14	1.82	4.00
Chest Breadth	120	20-32	27.98 \pm .15	1.67	5.97
Chest Depth	119	16-29	21.25 \pm .15	1.67	7.86
Bi-iliac	118	24-35	29.31 \pm .18	1.94	6.62
Leg Length	177	71-100	87.52 \pm .33	4.41	5.04
Arm Length	176	68-91	80.00 \pm .27	3.63	4.54
Cervicale	170	138-168	151.82 \pm .45	5.83	3.84
Chest Girth	177	80-104	90.59 \pm .34	4.52	4.99
Waist Girth	177	68-94	77.23 \pm .30	4.05	5.24
Hip Girth	174	83-103	92.58 \pm .32	4.23	4.57

NEGRO

X. BALANCED, SHORT TO MEDIUM

442, 443, 444

Balanced, short to medium is a class containing only three body types (442, 443, 444), but most important in military function. It is found in approximately equal proportions in Negro (16.32%) and White (16.52%) soldiers. The standard differences involved in increase of the 3rd component are obtained between Negro 442's, 443's, and 444's.

The Negro 442's differ from the White 442's in certain measurements in a direction that is unusual in these series. The Negroes are, if anything, slightly lighter than the Whites and no taller. They exceed the Whites only in Bi-iliac (insignificantly) and in the usual vertical dimensions involved in the standard racial differences.

In the 443 comparison the Negroes are again no taller, but slightly heavier. They show the same slight excess in pelvic breadth, the same inferiorities in girths and breadths and torso length, and the excesses in limb lengths.

In the 444's the Negroes have a very slight superiority in stature and a 3.21 lb excess of mean weight, otherwise showing only standard racial differences.

It should be noted that the small Balanced, tall group, No. XI, (445's) which is an interesting White type does not occur in the Negro sample in a sufficient number of cases to permit analysis.

TABLE CXXIX

NEGRO X Balanced, short to medium
442

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	74	17 - 37	23.60 ± .51	4.35	18.43
Weight	78	135 - 198	160.78 ± 1.55	13.65	8.49
Stature	78	155 - 178	165.72 ± .53	4.70	2.84
Torso Length	56	48 - 59	54.93 ± .32	2.40	4.37
Bideltoid	78	43 - 50	46.18 ± .18	1.62	3.51
Chest Breadth	56	24 - 31	28.54 ± .20	1.50	5.26
Chest Depth	55	18 - 24	21.36 ± .17	1.27	5.95
Bi-iliac	56	24 - 32	28.88 ± .26	1.93	6.68
Leg Length	78	71 - 95	81.64 ± .46	4.02	4.92
Arm Length	78	68 - 84	76.39 ± .36	3.20	4.19
Cervicale	77	131 - 158	143.15 ± .62	5.46	3.81
Chest Girth	78	82 - 102	92.18 ± .50	4.42	4.79
Waist Girth	77	71 - 88	78.31 ± .48	4.20	5.36
Hip Girth	78	72 - 102	93.39 ± .52	4.60	4.93

TABLE CXXX

NEGRO I Balanced, short to medium

443

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	326	17 - 38	23.40 \pm .24	4.25	18.16
Weight	347	113 - 196	158.33 \pm .82	15.25	9.63
Stature	347	153 - 184	170.22 \pm .30	5.55	3.26
Torso Length	245	46 - 63	55.60 \pm .19	2.92	5.25
Bideltoid	346	40 - 51	46.03 \pm .10	1.80	3.91
Chest Breadth	244	20 - 38	28.04 \pm .11	1.77	6.31
Chest Depth	243	17 - 26	21.09 \pm .09	1.39	6.59
Bi-iliac	242	23 - 39	28.89 \pm .14	2.25	7.79
Leg Length	345	70 - 96	83.91 \pm .21	3.82	4.55
Arm Length	344	68 - 87	78.01 \pm .17	3.12	4.00
Cervicale	338	131 - 162	146.34 \pm .30	5.44	3.72
Chest Girth	347	77 - 105	91.24 \pm .23	4.31	4.72
Waist Girth	345	62 - 94	76.84 \pm .22	4.08	5.31
Hip Girth	348	80 - 104	93.10 \pm .23	4.21	4.52

TABLE CXXXI

NEGRO I Balanced, short to medium

444

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	98	17 - 50	23.80 \pm .57	5.60	23.53
Weight	113	118 - 206	156.58 \pm 1.19	12.70	8.11
Stature	113	159 - 185	174.83 \pm .47	4.99	2.85
Torso Length	80	48 - 64	56.53 \pm .37	3.32	5.87
Bideltoid	113	41 - 49	45.86 \pm .15	1.56	3.40
Chest Breadth	80	20 - 36	27.88 \pm .22	1.97	7.07
Chest Depth	80	16 - 28	20.94 \pm .17	1.56	7.45
Bi-iliac	80	24 - 35	28.79 \pm .22	1.97	6.84
Leg Length	113	77 - 100	86.50 \pm .34	3.65	4.22
Arm Length	113	71 - 86	78.95 \pm .30	3.22	4.08
Cervicale	111	136 - 167	150.23 \pm .48	5.09	3.39
Chest Girth	112	80 - 101	90.15 \pm .41	4.33	4.80
Waist Girth	112	67 - 86	75.73 \pm .31	3.32	4.38
Hip Girth	111	80 - 103	91.68 \pm .33	3.49	3.81

NEGRO
XII. MEDIUM FAT, MUSCULAR
(452, 454, 462, 463); 453

The Medium fat, muscular group occurs in only 1.77% of Negroes as against 5.55% of the Whites.

The combined 452, 454, 462, and 463 subgroup is too small for detailed analysis and there is no similarly combined group in Whites with which it may be compared. It is apparently a little younger, shorter, and stockier subgroup than the 453's.

The 453's are rather old for this series (mean age 24.60 years) and are, as usual, slightly below average Negro height and well up in weight. They differ from the White 453's in all of the standard ways that we have repeatedly noted.

TABLE CXXXII
NEGRO XII Medium fat, muscular
452, 454, 462, 463

Measurement	No.	Range	Mean	S.D.	C.V.
Age	27	19 - 30	23.61	---	---
Weight	24	133 - 187	163.63	---	---
Stature	24	158 - 185	169.33	---	---
Torso Length	14	49 - 59	55.81	---	---
Bideltoid	24	42 - 51	46.78	---	---
Chest Breadth	13	25 - 33	28.22	---	---
Chest Depth	13	18 - 22	21.07	---	---
Bi-iliac	13	24 - 32	28.76	---	---
Leg Length	24	73 - 87	81.87	---	---
Arm Length	24	68 - 82	76.37	---	---
Cervicale	23	135 - 150	144.19	---	---
Chest Girth	24	86 - 102	93.37	---	---
Waist Girth	24	70 - 87	78.08	---	---
Hip Girth	27	87 - 102	95.26	---	---

TABLE CXXXIII
NEGRO XII Medium fat, muscular
453

Measurement	No.	Range	Mean	S.D.	C.V.
Age	33	19 - 31	24.60 ± .57	3.30	13.41
Weight	33	133 - 201	163.47 ± 2.84	16.32	9.98
Stature	33	159 - 181	170.90 ± .93	5.36	3.14
Torso Length	18	52 - 58	55.89 ± .48	1.98	3.54
Bideltoid	33	42 - 50	46.48 ± .37	2.11	4.54
Chest Breadth	18	25 - 31	28.56 ± .39	1.61	5.64
Chest Depth	18	18 - 23	20.95 ± .38	1.55	7.40
Bi-iliac	18	24 - 31	28.78 ± .47	1.94	6.74
Leg Length	32	76 - 90	84.14 ± .58	3.28	3.90
Arm Length	33	66 - 84	77.51 ± .73	4.17	5.38
Cervicale	31	136 - 157	146.61 ± .88	4.89	3.34
Chest Girth	33	82 - 101	92.81 ± .87	4.98	5.37
Waist Girth	33	67 - 86	77.36 ± .73	4.18	5.40
Hip Girth	33	84 - 106	93.30 ± .78	4.46	4.78

NEGRO

XIII. FAT, NON-MUSCULAR AND SUBMEDIUM MUSCULATURE

512, 522-524, 531, 534, 535; 532, 533

This group among the Negroes consists of one highly conglomerate subgroup - really too small for analysis - and two small subgroups, 532 and 533, which contain enough individuals to furnish samples big enough for statistical elaboration. It includes 3.61% of the Negro sample as compared with 6.56% in Whites.

The Negro 532's and 533's are comparatively old, on the average, for this Army sample (25.95 years and 25.45 years respectively). The 533's differ from the 532's according to the usual pattern when the 3rd component is increased (except for a very slightly larger hip girth, chest breadth, and chest depth).

The comparable White subgroups are practically the same mean ages as the Negroes, but slightly lighter in weight. The Negro 532's are a little taller than the Whites, but in the 533's the small difference is in the opposite direction. The usual racial differences are in evidence.

TABLE CXXXIV

NEGRO XIII Fat, non-musc., sub-med.musc.

512, 522-524, 531, 534, 535

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	17	19 - 39	24.85	---	---
Weight	16	153 - 198	153.56	---	---
Stature	16	159 - 190	176.58	---	---
Torso Length	14	50 - 63	57.59	---	---
Bideltoid	16	42 - 50	47.01	---	---
Chest Breadth	14	22 - 30	25.45	---	---
Chest Depth	14	20 - 33	22.09	---	---
Bi-iliac	14	28 - 35	30.66	---	---
Leg Length	16	75 - 95	87.45	---	---
Arm Length	16	72 - 87	79.64	---	---
Cervicals	13	137 - 166	134.26	---	---
Chest Girth	16	92 - 101	97.51	---	---
Waist Girth	16	82 - 97	88.83	---	---
Hip Girth	16	91 - 105	100.33	---	---

TABLE CXXXV

NEGRO XIII Fat, non-musc., sub-med.musc.

532

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	42	19 - 44	25.95 ± .90	5.85	22.54
Weight	45	147 - 218	173.94 ± 2.58	17.30	9.95
Stature	45	159 - 183	169.58 ± .90	6.07	3.58
Torso Length	31	49 - 59	55.64 ± .42	2.32	4.17
Bideltoid	45	43 - 52	47.07 ± .34	2.25	4.78
Chest Breadth	31	21 - 32	28.10 ± .40	2.24	7.97
Chest Depth	31	18 - 24	21.39 ± .26	1.46	6.83
Bi-iliac	31	24 - 40	29.68 ± .52	2.90	9.77
Leg Length	45	73 - 92	83.41 ± .55	3.70	4.44
Arm Length	45	62 - 89	77.67 ± .65	4.39	5.65
Cervicale	43	133 - 158	146.12 ± .97	6.33	4.33
Chest Girth	45	84 - 104	95.09 ± .69	4.65	4.89
Waist Girth	45	76 - 102	85.76 ± .84	5.61	6.54
Hip Girth	45	76 - 110	97.21 ± .84	5.61	5.77

TABLE CXXXVI

NEGRO XIII Fat, non-musc., sub-med.musc.

533

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	51	19 - 35	25.45 ± .68	4.85	19.06
Weight	55	146 - 198	171.72 ± 1.62	12.03	7.00
Stature	56	163 - 186	173.74 ± .64	4.80	2.76
Torso Length	36	50 - 64	56.31 ± .50	2.97	5.27
Bideltoid	55	43 - 52	46.89 ± .22	1.68	3.58
Chest Breadth	36	24 - 31	28.34 ± .27	1.59	5.61
Chest Depth	36	19 - 24	21.56 ± .22	1.29	5.98
Bi-iliac	36	24 - 33	29.56 ± .34	2.05	6.94
Leg Length	54	77 - 93	85.21 ± .44	3.20	3.76
Arm Length	54	73 - 85	78.91 ± .38	2.82	3.57
Cervicale	53	139 - 160	150.03 ± .63	4.56	3.04
Chest Girth	55	83 - 103	93.90 ± .52	3.87	4.12
Waist Girth	55	72 - 91	83.80 ± .58	4.29	5.12
Hip Girth	55	86 - 106	97.78 ± .52	3.86	3.95

NEGRO

XIV. FAT, MEDIUM MUSCULATURE

541-542; 543-544

This group among the Negroes constitutes only 3.41% of the sample as contrasted with 7.79% in the White series. Unfortunately, in the Negro series it has been necessary on account of the paucity of numbers to combine 541's with 542's and 543's with 544's. Hence, comparisons cannot be straightforward as in the case of pairing of single body types. So we have the slightly anomalous differences of superiority in age, weight, and chest depth of the 543-544 group. Otherwise the differences are in accordance with expectation.

Actually the Negro 541-542's differ from the White 542's in precisely the expected fashion (except for larger hip girth). They are younger, heavier, insignificantly taller, and display the usual racial differences.

It is difficult to compare the Negro 543-544 groups with the separate White 543's and 544's, but the Negroes are clearly heavier and taller and, except for larger hip girth, exhibit the usual racial differences.

TABLE CXXXVII

NEGRO. XIV Fat, med. musculature

541- 542

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	68	19 - 36	25.60 ± .59	4.90	19.14
Weight	68	135 - 220	177.89 ± 2.04	16.85	9.47
Stature	68	154 - 180	169.52 ± .71	5.86	3.46
Torso Length	49	50 - 63	56.02 ± .40	2.82	5.03
Bideltoid	68	43 - 52	47.73 ± .26	2.12	4.44
Chest Breadth	49	24 - 32	29.41 ± .27	1.86	6.32
Chest Depth	49	18 - 26	21.80 ± .21	1.46	6.70
Bi-iliac	49	25 - 34	30.29 ± .36	2.54	8.39
Leg Length	68	73 - 90	83.02 ± .50	4.12	4.96
Arm Length	68	63 - 85	77.77 ± .48	3.98	5.12
Cervicale	68	131 - 158	146.17 ± .68	5.63	3.85
Chest Girth	67	85 - 111	96.66 ± .63	5.19	5.37
Waist Girth	68	74 - 97	84.00 ± .61	5.02	5.92
Hip Girth	68	88 - 109	98.83 ± .58	4.80	4.86

TABLE CXXXVIII

NEGRO XIV Fat, med. musculature

543-544

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	41	19-38	26.40 ± .87	5.60	21.21
Weight	41	146-237	178.47 ± 2.79	17.85	10.00
Stature	41	165-192	176.21 ± .93	5.97	3.37
Torso Length	26	51-62	57.53 ± .55	2.79	4.85
Bideltoid	41	40-51	46.86 ± .35	2.21	4.72
Chest Breadth	27	26-39	29.49 ± .46	2.41	8.17
Chest Depth	27	19-25	22.34 ± .25	1.32	5.91
Bi-iliac	27	25-36	30.12 ± .49	2.54	8.43
Leg Length	40	78-94	86.70 ± .63	3.97	4.58
Arm Length	41	74-87	80.16 ± .52	3.35	4.18
Cervicale	40	140-168	151.90 ± .88	5.58	3.67
Chest Girth	41	86-104	95.79 ± .60	3.84	4.01
Waist Girth	41	68-95	82.33 ± .85	5.45	6.62
Hip Girth	40	88-109	97.93 ± .65	4.10	4.19

NEGRO

XV. FAT, MUSCULAR

551-553, 562

An insignificant few of the Negro series fall into the Fat muscular class (0.39% as against 1.79% in Whites). There are in fact only fourteen Negroes so classified with 5 in the first component, 5 or 6 in the second, 1 to 3 in the third. Obviously the means of this heterogeneous handful have little utility. They are very slightly younger than the 55-'s among the Whites, a few pounds heavier, and otherwise differ from them in the regular Negro-White divergences: shorter trunks, longer arms and legs, slightly narrower chests, etc., although here again the Negroes have slightly larger hip girth. The thin, submedium, and medium fat Negro types have a smaller hip girth than the Whites. For 5 and 6 in fat they have equal or slightly larger hip girths.

TABLE CXXXIX

NEGRO XV Fat, muscular

551-553, 562

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	12	20 - 33	26.25	---	---
Weight	14	148 -199	175.02	---	---
Stature	14	158 -180	168.38	---	---
Torso Length	9	51 - 60	55.67	---	---
Bideltoid	13	44 - 51	47.99	---	---
Chest Breadth	9	21 - 30	28.45	---	---
Chest Depth	9	20 - 24	22.56	---	---
Bi-iliac	9	25 - 32	30.01	---	---
Leg Length	14	74 - 94	82.81	---	---
Arm Length	14	72 - 82	76.88	---	---
Cervicale	14	135 -156	144.38	---	---
Chest Girth	14	88 -103	96.45	---	---
Waist Girth	14	74 - 90	82.52	---	---
Hip Girth	13	91 -102	97.68	---	---

NEGRO

XVI. VERY FAT, NON-MUSCULAR, SUBMEDIUM MUSCULATURE 61-, 62-, 63-, 72-, 73-

Because of the paucity of very fat Negroes in this series, it has been necessary to combine the 61-'s to 63-'s, and the 72-'s and 73-'s in one small subgroup. The aggregate percentage of this class is 0.92 as against 1.78 in Whites.

The mean age (26.80) is over a year older than the average range of means in the very fat, non-muscular types of Whites (25.49). The mean weight of this group (198.47 lbs.) exceeds that of all of the White 6's but is more than twenty lbs below that of the White 7's. It is one lb. less than the average of the White groups combined (199.45). This mixed Negro subgroup is also shorter than all of the very fat, non-muscular whites except the 631's. It is also shorter by more than 2 cm than the average of the combined Whites.

Racial differences seem to some extent lost when this very mixed Negro subgroup is compared with the six separate subgroups of Whites which have been combined in the Negroes. When the White groups are combined and averaged for comparison the racial differences are evident in all measurements except for smaller stature, cervicale, weight, and bi-iliac in the Negroes.

The Negro subgroup appears to be closest in means of age, stature, and weight to the White 631's and it shows, when compared to this single subgroup, the ordinary racial differences in torso and limb lengths. However, the Whites have wider hips and shorter torso differences contrary to the ordinary trend.

TABLE CXL

NEGRO XVI Very fat, non-musc., sub-med.musc.
612, 621, 622, 631, 632, 633, 721, 731

Measurement	Nc.	Range	Mean	S.D.	C.V.
Age	28	17-23	26.80 ± 1.22	6.45	24.07
Weight	32	162-237	198.47 ± 3.62	19.90	10.03
Stature	32	155-185	171.62 ± 1.06	6.01	3.50
Torso Length	20	54-63	58.25 ± .56	2.52	4.33
Bideltoid	32	36-55	49.25 ± .51	3.08	6.26
Chest Breadth	20	20-32	28.95 ± .59	2.62	9.05
Chest Depth	20	17-23	23.00 ± .41	1.83	7.96
Bi-iliac	20	24-35	30.90 ± .58	2.58	8.35
Leg Length	32	72-90	84.17 ± .77	4.35	5.17
Arm Length	32	66-91	78.36 ± .77	4.33	5.53
Cervicale	32	130-163	148.22 ± 1.07	6.05	4.08
Chest Girth	32	91-111	100.25 ± .93	5.25	5.24
Waist Girth	32	84-112	94.07 ± 1.16	6.54	6.96
Hip Girth	32	96-118	103.98 ± .87	4.93	4.74

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NEGRO

XVII. VERY FAT, MEDIUM MUSCULATURE

64-, 74-

Very fat, medium musculature is a tiny class totalling 0.69% in Negroes as against 2.65% in Whites. The 23 Negroes in this group consist of 64-'s and 74-'s and cannot hence be treated as a homogeneous series. They are closest to the White 641's and 652's. If we compare this heterogeneous Negro subgroup with the White 641's, all of the ordinary racial differences can be observed, with a few exceptions—i.e. bideltoid, bi-iliac, weight, stature, and cervicale, in which the Whites anomalously are superior.

The White 652's are also much like this Negro subgroup, but a little heavier, taller, and generally superior in transverse dimensions and girths (except hip girth, waist girth, and arm length).

TABLE CXLI

NEGRO XVII Very fat, med. musc.

641, 642, 741

<u>Measurement</u>	<u>No.</u>	<u>Range</u>	<u>Mean</u>	<u>S.D.</u>	<u>C.V.</u>
Age	21	20 - 35	26.55 ± .99	4.55	17.14
Weight	23	160 -232	194.33 ± 4.12	19.34	9.95
Stature	23	158 -179	168.58 ± 1.27	5.98	3.55
Torso Length	17	50 - 62	56.69 ± .81	3.25	5.73
Bideltoid	23	37 - 53	48.06 ± .71	3.33	6.93
Chest Breadth	17	26 - 33	29.98 ± .51	2.04	6.80
Chest Depth	17	19 - 26	22.98 ± .47	1.88	8.18
Bi-iliac	17	23 - 35	30.04 ± .87	3.50	11.65
Leg Length	23	72 - 92	81.36 ± 1.08	5.08	6.24
Arm Length	23	68 - 85	76.84 ± .87	4.07	5.30
Cervicale	23	133 -155	145.49 ± 1.34	6.30	4.33
Chest Girth	23	94 -110	100.54 ± .99	4.63	4.61
Waist Girth	23	85 -105	92.71 ± .99	4.67	5.04
Hip Girth	23	86 -111	104.36 ± .91	4.35	4.17

NEGRO

SUMMARY - ANALYSIS OF MEASUREMENTS

Age

As in Whites usually rises with increments of 2nd component. Most Negro body types tend to have slightly younger mean age than corresponding types of Whites.

Weight

Increments with change of component grades similar to those of Whites. Negroes, body type for body type, are from 1.7 to 7.7 lbs heavier than Whites (20 of 21 pairings).

Stature

Negroes seem usually to exceed Whites of the same body types, but this comparison is hampered by paucity of high 1st component types among the former.

Torso Length

Although taller than Whites, Negroes have consistently shorter torsos - type for type.

Bideltoid

Negroes ordinarily have slightly wider shoulders than Whites.

Chest Breadth

The measurement shows little relationship to shifting structural components. There is a tendency for Negroes to have slightly narrower chests than Whites of corresponding body builds.

Chest Depth

No consistent difference between Negroes and Whites is apparent.

Bi-iliac

Rises in Negroes with increasing 1st component. No certain difference between Negroes and Whites.

Leg Length

Increments with change of components are as in Whites. Type for type Negroes have much longer legs than Whites.

Arm Length

Negroes also greatly exceed corresponding types of Whites in arm length.

Cervicals

Negroes consistently exceed Whites.

Chest Girth

Chest girths of Negroes are almost invariably smaller (on the average) than those of Whites of corresponding body types.

Waist Girth

Not much difference between Negroes and Whites.

Hip Circumference

There is an uncertain tendency for Negroes to fall slightly below Whites in this measurement.

RESUME OF MAIN POINTS IN MEASUREMENTS

This Negro series is usually younger than the Whites when corresponding body types are compared. The Negroes are ordinarily heavier, taller, with shorter trunks, much longer legs and arms, slightly wider shoulders, slightly narrower and probably relatively but not absolutely deeper chests, smaller chest girths. These racial differences are consistent.

THE BODY BUILD GROUPS

In general, on account of the small Negro series, many body types found in Whites are absent or insufficiently represented. Other body types occur in very different proportions among the Negroes. Notably, the latter tend to include far more of the tall slender types, far fewer of the plump and obese and short types. Details of comparisons are found in the text.

In general, between Negroes and Whites of corresponding body types, the racial differences above explained are regularly in evidence.

Differences between Negroes and Whites of Corresponding Body Builds

In general the differences between arithmetic means of measurements of Negroes and Whites are to be interpreted according to the direction and significance in corresponding body type groups for any single measurement. "Significance" is a statistical term having to do with the chances that the differences are or are not due to size of samples or to irrelevant accidental factors, but may be regarded as valid. This significance is measured by dividing the differences between two means of any measurement by the standard error of that difference. The quotient is called "the critical ratio." The minimum level of significance, as regarded here, is a difference equal to at least twice the standard error of that difference. A difference of such magnitude may be expected to occur by chance in only 4.55% of cases - or less than 5 in 100. If the difference equals 2.5 standard errors the probability of occurrence by chance is only 1.24% (or 1.24 cases in 100 samplings). If the difference equals 3 standard errors it may be expected to occur by chance in .27% or in 2.7 cases in 1,000.

The threshold of significance here is then taken as 2 standard errors.

Differences between Negroes and Whites of Corresponding Body Builds - Age

<u>Somatotype</u>	<u>Differences</u>	<u>X.S.E.</u>
225	- .65	1.38
235	- .95	1.44
324	- .55	1.02
325	- .85	2.18
333	- .40	.67
334	- 1.25	6.58
335	- 1.00	3.45
343	- 1.50	3.00
344	- .65	2.24
345	- 1.65	1.65
424	- .05	.06
433	- .25	.78
434	- .75	1.88
444	- 1.25	1.84
443	- 1.30	5.00
444	- .50	.86
453	- .30	.51
532	+ .10	.11
533	- .40	.58

In 18 of 19 pairings of Negro and White body types, the Negroes are younger than the Whites. This difference attains statistical significance in only 6 of the 19 cases (31.58% of cases). In the only case of Negro superiority in age the difference is insignificant.

Differences between Negroes and Whites
of Corresponding Body Builds - Weight

<u>Somatotype</u>	<u>Differences</u>	<u>X.S.E.</u>
225	+ 7.38	5.39
235	+ 1.72	.99
324	+ 1.76	1.11
325	+ 4.88	3.17
333	+ 4.67	2.64
334	+ 3.71	5.89
335	+ 3.23	3.20
343	+ 7.67	4.57
344	+ 3.86	4.15
345	+ 2.26	.90
424	+ 8.46	2.83
433	+ 1.37	1.49
434	+ 4.74	3.89
442	- .68	.44
443	+ 2.12	2.44
444	+ 3.21	2.65
453	+ 6.21	2.16
532	+ 3.42	1.27
533	+ 1.59	.95

In 18 of 19 cases the Negroes are heavier than Whites of supposedly identical body builds. In 12 of the 19 pairings (63.16%) the differences in favor of the Negroes is significant.

Differences between Negroes and Whites
of Corresponding Body Builds - Stature

<u>Somatotype</u>	<u>Differences</u>	<u>X, S, C.</u>
225	+ 2.66	4.43
235	- .19	.25
324	+ .10	.15
325	+ 1.32	2.10
333	+ 1.60	2.39
334	+ .77	2.96
335	+ .79	1.88
343	+ 1.81	2.83
344	+ .50	1.32
345	- .14	.15
424	+ 2.94	2.65
433	0	0
434	+ .98	2.23
442	- .17	.25
443	- .02	.06
444	+ .42	.88
453	+ .69	.73
532	+ .69	.73
533	- .34	.52

In 13 of 19 pairings the Negroes are taller than the corresponding Whites. These differences attain significance in 7 cases (36.84%).

Differences between Negroes and Whites
of Corresponding Body Builds - Torso Length

<u>Somatotype</u>	<u>Differences</u>	<u>X.S.E.</u>
225	- 2.30	6.39
235	- 2.65	4.82
324	- 2.12	5.58
325	- 1.32	3.14
333	- 1.58	3.85
334	- 2.04	13.60
335	- 2.22	7.93
343	- 1.59	4.42
344	- 2.28	9.91
345	- 1.86	2.78
424	- 1.69	4.23
433	- 2.13	9.68
434	- 1.86	6.64
442	- 2.07	5.18
443	- 2.12	10.60
444	- 2.22	6.00
453	- 1.84	3.76
532	- 1.62	3.52
533	- 2.49	4.88

In every one of 19 pairings Negroes have shorter torso lengths than Whites and these differences are so great as to be overwhelmingly significant in each pairing.

Differences between Negroes and Whites
of Corresponding Body Builds-Bideltoid

<u>Somatotype</u>	<u>Differences</u>	<u>x, s, c, v</u>
225	+ 1.46	7.30
235	+ .09	.27
324	+ .74	3.22
325	- .36	1.50
333	+ .56	2.33
334	+ .52	6.50
335	+ .52	4.00
343	+ .74	3.36
344	+ .57	4.38
345	+ .90	2.37
424	+ .42	1.17
433	+ .11	.85
434	+ .28	1.87
442	- .66	2.83
443	+ .20	1.82
444	+ .44	2.93
453	+ .24	.63
532	+ .12	.33
533	+ .19	.83

The Negroes have wider shoulders in 17 of 19 pairings
and these differences are significant in 10 cases (52.63%).

Differences between Negroes and Whites
of Corresponding Body Builds - Chest Breadth

<u>Somatotype</u>	<u>Differences</u>	<u>X, S. E.</u>
225	+ .22	.73
235	- .31	1.14
324	- .07	.29
325	- .18	1.00
333	+ .46	1.84
334	- .07	.88
335	- .04	.27
343	+ .03	.10
344	- .27	2.08
345	- .25	.86
424	+ .37	.70
433	- .38	2.74
434	- .04	.27
442	- .19	.76
443	- .42	3.50
444	- .42	1.83
453	- .11	.28
532	- .88	2.15
533	- .61	2.18

In 15 of 19 cases Negroes have narrower chests than Whites. These differences attain significance in 5 cases (26.32%).

Differences between Negroes and Whites
of Corresponding Body Builds - Chest Depth

<u>Somatotype</u>	<u>Differences</u>	<u>x.s.e.</u>
225	+ .21	.68
235	+ .14	.48
321	- .07	.33
325	+ .04	.19
333	+ .33	1.43
334	- .18	2.00
335	+ .14	1.00
343	+ .21	.91
344	+ .09	.69
345	- .22	.67
424	+ .60	1.25
433	- .36	2.57
434	+ .28	1.87
442	- .11	.52
443	- .20	.22
444	- .05	.29
453	- .37	.97
532	- .93	3.44
533	- .56	2.43

In 10 of 19 cases, Negroes have shallower chests than Whites, but these differences are significant in only 4 cases (21.05%).

Differences between Negroes and Whites
of Corresponding Body Builds- Bi-iliac

<u>Build</u>	<u>Differences</u>	<u>X, S, O.</u>
+	.90	3.10
-	.13	1.13
+	.19	1.69
+	.24	1.26
+	.61	2.18
+	.12	4.20
-	.08	.50
+	.06	.24
+	.55	2.89
-	.27	.54
+	.39	.87
+	.20	1.18
+	.47	2.61
+	.25	.81
+	.36	2.40
+	.14	.61
+	.25	.52
+	.21	.40
-	.85	2.43

In 15 of 24 cases, Negroes have broader pelvis than
 Whites of the same body type. In 7 cases (36.8%) these
 differences are significant.

Differences between Negroes and Whites
of Corresponding Body Build - Leg Length

<u>Stature</u>	<u>Differences</u>	<u>X.S.E.</u>
175	+ 4.60	9.58
170	+ 2.63	4.96
165	+ 1.96	4.56
160	+ 2.17	4.82
155	+ 3.96	8.25
150	+ 3.01	16.72
145	+ 2.55	8.79
140	+ 3.97	8.45
135	+ 2.81	10.04
130	+ 3.62	4.76
125	+ 4.47	4.97
120	+ 2.37	8.46
115	+ 2.80	8.24
110	+ 2.86	5.02
105	+ 2.61	11.86
100	+ 2.69	7.69
95	+ 3.18	5.39
90	+ 2.80	4.83
85	+ 1.64	3.64

Obviously Negroes have longer legs than Whites of corresponding body types, and these differences are always overwhelmingly significant. The range of critical values is from 3.64 to 16.72 standard errors.

Differences between Negroes and Whites
of Corresponding Body Builds - Arm Length

<u>Somatotype</u>	<u>Differences</u>	<u>X, S. E.</u>
225	+ 3.41	7.75
235	+ 1.54	3.08
324	+ .89	2.12
325	+ 2.02	5.46
333	+ 2.41	5.24
334	+ 1.82	13.00
335	+ 1.73	7.21
343	+ 2.84	7.28
344	+ 2.03	9.23
345	+ 2.62	3.20
424	+ 3.55	3.90
433	+ 1.70	7.39
434	+ 1.92	6.86
442	+ 1.47	3.13
443	+ 2.00	11.11
444	+ 1.59	5.30
453	+ 1.88	2.54
532	+ 2.03	3.03
533	+ 1.40	3.59

The same invariable superiority of the Negroes is displayed in arm length with differences amounting to from 2.12 to 13.00 times their standard errors.

Differences between Negroes and Whites
of Corresponding Body Builds-Cervicale

<u>Somatotype</u>	<u>Differences</u>	<u>x.s.e.</u>
225	+ 3.03	5.14
235	+ .64	.88
324	+ .53	.84
325	+ 1.54	2.44
333	+ 1.88	2.69
334	+ 1.32	5.08
335	+ 1.22	2.90
343	+ 2.16	3.32
344	+ .88	2.26
345	+ .26	.26
424	+ 3.46	3.06
433	+ .48	1.37
434	+ 1.27	2.76
442	+ .26	.33
443	+ .34	1.06
444	+ .66	1.35
453	+ .97	1.08
532	+ .77	.77
533	+ .29	.45

The cervicale height in Negroes is superior in every case, but in only 9 of 19 cases (47.37%) is the minimum level of significance reached.

Differences between Negroes and Whites
of Corresponding Body Builds—~~Short Stature~~

<u>Somatotype</u>	<u>Differences</u>	<u>I. P. C.</u>
225	- .01	
235	- 2.61	
324	- 1.74	
325	- 1.70	
333	- 1.51	
334	- 1.79	
335	- 1.26	
343	- 1.52	
344	- 2.01	
345	- 1.91	
424	+ .38	
433	- 2.06	
434	- .78	
442	- 3.27	
443	- 1.97	
444	- 1.80	
453	- 1.44	
532	- 1.94	
533	- 3.14	

This circumference is invariably ~~smaller~~ in Negroes than in Whites of the same body build. ~~The differences~~ are significant in 15 of 19 cases (78.95%).

Differences between Negroes and Whites
of Corresponding Body Builds-Waist Girth

<u>Somatotype</u>	<u>Differences</u>	<u>x.s.e.</u>
225	+ .99	2.11
235	- 1.36	2.78
324	- .53	1.23
325	+ .54	1.23
333	+ .40	.75
334	- .45	2.65
335	- .27	1.13
343	- .32	.76
344	- .88	3.38
345	- .40	.74
424	+ .41	.51
433	- 1.30	4.48
434	- .28	.90
442	- 2.63	4.25
443	- 1.45	6.30
444	- .87	2.72
453	- .72	.97
532	+ .01	.11
533	- .08	.14

In 14 of 19 pairings, waist girth in Negroes is less than that of Whites. These differences are significant in 8 cases (42.11%).

Differences between Negroes and Whites
of Corresponding Body Build - Hip Girth

<u>Measure</u>	<u>Differences</u>	<u>L.S.D.</u>
1910	+	1.30
1911	+	1.30
1912	+	1.30
1913	+	1.30
1914	+	1.30
1915	+	1.30
1916	+	1.30
1917	+	1.30
1918	+	1.30
1919	+	1.30
1920	+	1.30
1921	+	1.30
1922	+	1.30
1923	+	1.30
1924	+	1.30
1925	+	1.30
1926	+	1.30
1927	+	1.30
1928	+	1.30
1929	+	1.30
1930	+	1.30

In 11 of 26 cases, hip girth is less in Negroes than in Whites. These differences are significant in 10 cases (61.5%).

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